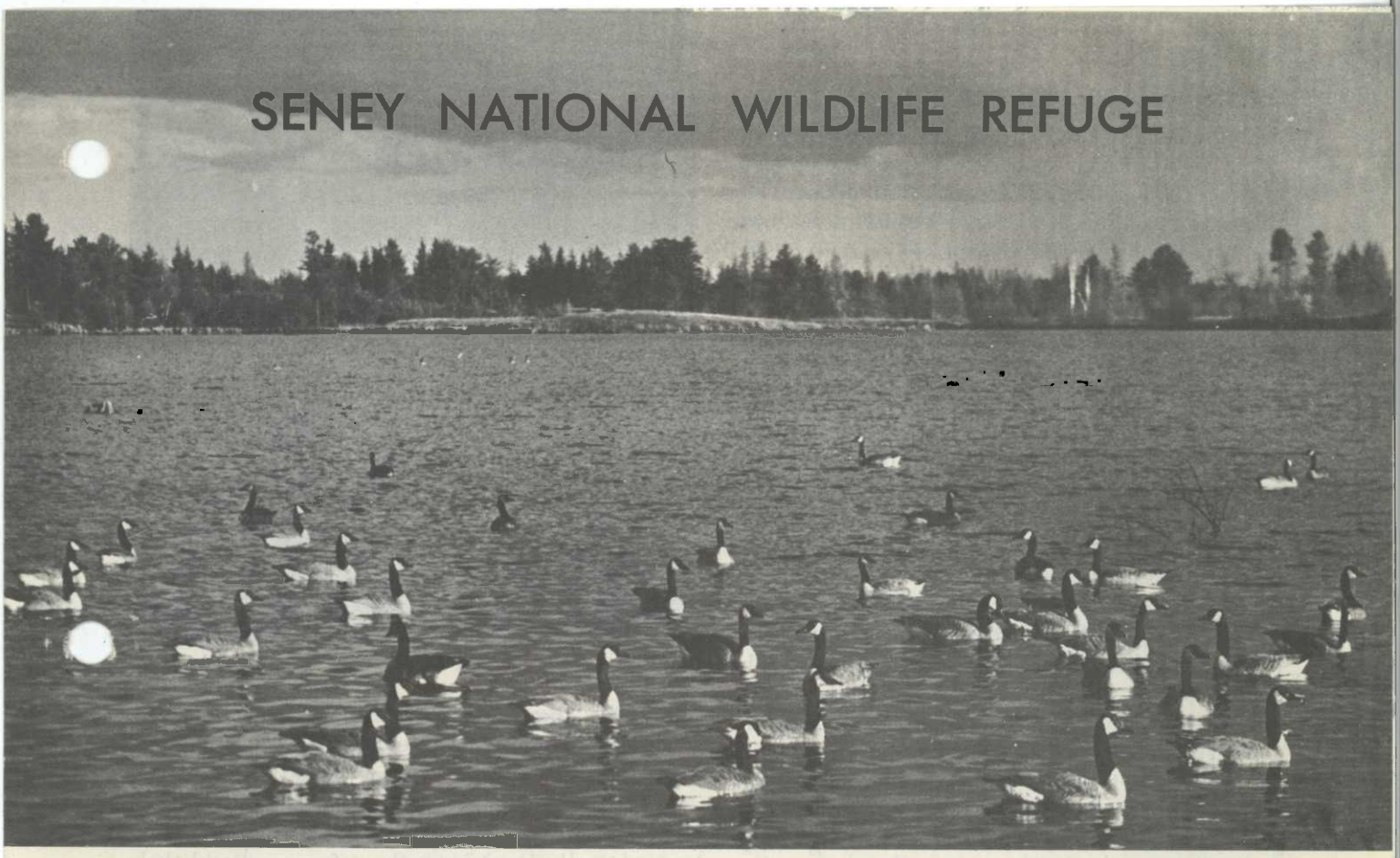
SENEY NARRATIVE REPORT JANUARY - DECEMBER 1965

SENEY NATIONAL WILDLIFE REFUGE



Canada goose flock at refuge headquarters.

SOME SIXTY YEARS AGO the forests of Michigan's Upper Peninsula echoed to the ring of the lumberman's axe. Today, in part of this area, a different sound is heard—the wild sweet music of Canada geese that have been induced to nest on Seney National Wildlife Refuge. Of all the wildlife-management practices put into effect at Seney, getting Canada geese to nest on an area where none had nested before is perhaps the greatest achievement.

Seney National Wildlife Refuge was established in 1935 for the protection and production of waterfowl and other desirable wildlife species. The refuge is in the great Manistique swamp, and most of it is open marsh with immense areas of rushes and sedges. Here and there in the vast expanse of marsh are shallow pools of clear, cold water and sandy knolls and ridges that support stands of old Norway pines—survivors from the days when Michigan led the Nation in lumber production. The great timber-cutting period began about 1870, and by 1890 the Upper Peninsula was practically stripped of its forests.

Often fires were deliberately set to clear away the wreckage of past lumbering operations and to make way for new ones. These uncontrolled fires burned the humus down to the sandy substratum and killed the seeds that would have produced a new forest. After the fires burned out, but before nature could restore the area, Seney was exploited by a land-development company that drained acre after acre of soil unsuited to agriculture. The reclaimed acreage was sold through extravagant promises of its productivity, but the buyer-farmers soon learned that crops of sufficient size to provide a livelihood could not be grown. One by one they quit the area, and the worthless lands reverted to the State for taxes.

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

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In 1934 the Michigan Conservation Department recommended to the Federal Government that the Seney area be taken over for wildlife development, and the recommendation was acted upon. The physical development of Seney's 95,531 acres, near the upper end of the Mississippi Flyway, included the moving of thousands upon thousands of yards of sand and peat to build an intricate system of dams, dikes, and ditches designed to divert and impound water. Truck trails, many of them on the dikes, were put in, so that a rapid inspection of the refuge, particularly of the water controls, is possible. Desirable food plants, like wild celery and rice, were established by planting and seeding the margins of channels and pools. Although some of the construction work was done by contractors, most of it was done by emergency agencies set up to relieve unemployment in the 1930's.

The response of wildlife to habitat restoration at Seney has been better than was hoped for. The success of the Canada goose as a nesting species is a fine example of this response. In January 1936, Henry Wallace, a resident of Detroit, gave the refuge a flock of 300 captive-bred Canada geese. The pinioned birds were put in a goose pasture of 400 acres, and the best nesting conditions possible were provided through control of water levels and habitat. Goslings reared by this breeding flock took off in the fall for southern wintering grounds, just as goslings reared in the wild do.

These first Seney-reared birds returned the following spring and, in subsequent years, bred, nested, and reared goslings of their own. This cycle continued so that by 1944 the Canada goose was definitely established as a nesting species, and

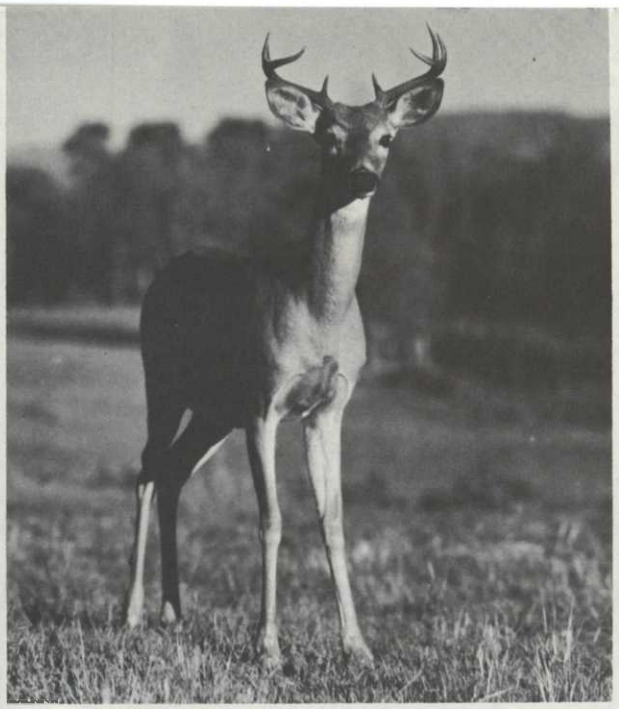
Bald eagle nest.

by 1954 there were 2,800 of the black-necked, white-cheeked birds using the pools, islands, and foods of the refuge. Seney geese act as decoys attracting migrant flocks, so that in the fall when Canadian birds wing down from their breeding grounds, they put in at the refuge and add their honking to that of the birds already there. As mornings grow colder and the pools begin to ice over, migrants and decoys begin to take off, until finally there are no more wedges of geese flying over the Norway pines and into the gray skies.

Geese—Canadas, snows, and blues—are not the only migratory waterfowl that have been attracted to Seney. The refuge is well within the nesting range of several species of ducks, with the black duck the most prolific nester, popping out of seepage pools and beaver ponds at every turn. The mallard is a close second, and is followed by both the common and the hooded merganser. Other ducks that nest at Seney in lesser numbers are baldpates, ring-necks, blue-winged teals, wood ducks, and goldeneyes.

The shallow waters of the pools, liked by the geese and ducks and other marsh and water birds, range from 1 to 6 feet in depth. Cold and clear, with occasional snags and some submerged brush, these pools are exactly what the savage northern pike likes in the way of habitat, and though there are plenty of perch, bullheads, and sunfish, most fishermen who come to Seney cast for pike, from the dikes or from the edges of the pools. Public fishing on the larger pools begins July 1, after the waterfowl nesting season, and runs through the Labor Day weekend. Smaller pools, just north of the headquarters entrance, are open to the public

Nature trails have family appeal.



White-tailed deer.

for fishing at all times in accordance with State regulations, and there are shelters, tables, and stone fireplaces for the convenience of those fishing this section or anyone else who wants to use them.

Fishing is not the only public use permitted at Seney for sportsmen. During the last half of November and after the waterfowl have left, most of the refuge is open to deer hunting in accordance with State regulations. During the season the western half of the area is open for camping parties.

For nature lovers of any kind, but particularly those interested in birds, Seney's 200-odd species, including the migratory waterfowl of course, offer a wide variety for study. Conducted nature tours during the summer provide opportunities to see some of the better parts of the area and some of the many birds and a few of the mammals. Special arrangements can be made for organized groups. The daily tour is a 10-mile drive through Unit I over winding roads that skirt first one bracken-edged pool and then another; another possibility is a walking trip of 1½ miles over a nature trail that begins and ends at refuge headquarters.

Plants of particular interest include sweetfern, Labrador-tea, wintergreen, and bracken. One of the lichen family on the refuge is the British-soldier, a minute growth with a bright red cap. There are many other plants typical of a marsh, and many that are common to higher ground, of which the refuge has about 3,000 acres. And there are three natural areas, set aside so that indigenous vegetative types can be studied under conditions as nearly natural as possible. These study areas include about a hundred acres of Norway pine in the south section, fifty acres of hemlock in the northeast section, and about four hundred acres of hardwoods.

Beaver or their workings may be seen, while other fur animals on the refuge are mink, muskrat, otter, coyote, fox, raccoon, skunk, weasel, bobcat, and wolf. Trapping is carried on as necessary, to keep these animals within the carrying capacity of the refuge, and permittees are given exclusive trapping rights on designated trapping units. Refuge receipts from trapping and other supervised economic uses, including timber removal, reach a substantial amount each year. Twenty-five percent of these receipts are returned by the Treasurer of the United States to Schoolcraft County in lieu of taxes for the maintenance of schools and roads—revenue the county would never have realized if a refuge had not been established there. So the transformation of some 96,000 acres of marsh from a barren, drained scar to a fertile, productive area is conservation in action at its best.

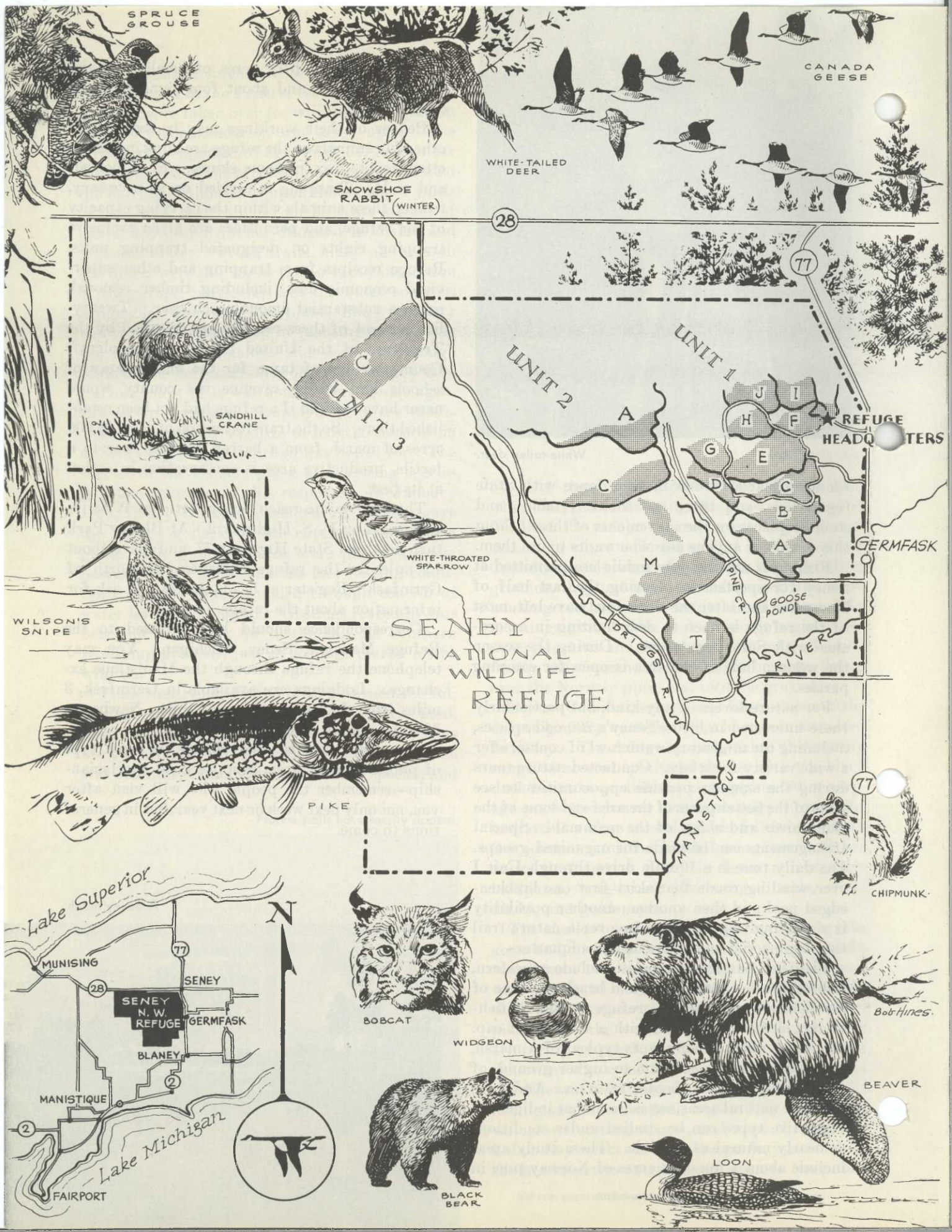
The best way to reach Seney National Wildlife Refuge, is on U. S. Highway 2. At Blaney Park turn north on State Highway 77, and drive about 12 miles to the refuge entrance just north of Germfask. Register at headquarters and ask for information about the refuge.

Correspondence should be addressed to the Refuge Manager, Seney, Michigan. You may telephone the refuge through the Manistique exchange. Lodgings are available in Germfask, 3 miles from the refuge, Seney, 5 miles, Newberry, 30 miles, and Manistique, 35 miles.

On your visit to this refuge, or any type of public outdoor area, practice good sportsmanship—remember the people who will visit after you, not only next week or next year, but in generations to come.

A Seney marsh.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1962—O—654102


SPRUCE GROUSE
SNOWSHOE RABBIT (WINTER)
WHITE-TAILED DEER
CANADA GEESE
28
77
UNIT 1
UNIT 2
UNIT 3
A
B
C
D
E
F
G
H
J
L
M
T
REFUGE HEADQUARTERS
SANDHILL CRANE
WHITE-THROATED SPARROW
WILSON'S SNIPE
GERMFASK
PINE CR.
GOOSE POND
DRIGGS R.
RIVER
SENEY
NATIONAL
WILDLIFE
REFUGE
MANISTIQUE
PIKE
CHIPMUNK
Lake Superior
MUNISING
SENEY
SENEY N. W. REFUGE
GERMFASK
BLANEY
MANISTIQUE
Lake Michigan
FAIRPORT
N
BOBCAT
WIDGEON
BEAVER
Bob Hines
BLACK BEAR
LOON

BIRDS OF THE SENEY NATIONAL WILDLIFE REFUGE

The Seney National Wildlife Refuge, established in 1935, is a unit in the Mississippi Flyway extending from Canada to the Gulf. This 96,000-acre tract is in the northwoods of Michigan's Upper Peninsula, and is an outstanding example of wildlife habitat rehabilitation. It is administered by the Bureau of Sport Fisheries and Wildlife, U. S. Fish and Wildlife Service, in the Department of the Interior.

More than half of the area is marshy in character, with about 7,000 surface acres of water impounded in 20 man-made pools by a network of dikes, plus numerous natural and beaver-made ponds. The soils are extremely poor, consisting for the most part of sand and peat. First devastated by the lumberman's axe, and then by the terrible fires that follow, and the land has since been best adapted for wildlife and recreational uses.

During the summer this refuge is home for a wide variety of interesting wildlife. On a spring morning the air fairly rings with the calls of Canada geese, sandhill cranes, and common loons. A number of ducks nest on the area, with the black duck, mallard, hooded and common mergansers, ring-necked duck, American widgeon, blue-winged teal, wood duck, and common goldeneye being found in approximately that order. Other attractions are three species of grouse, the bald eagle, and many smaller birds including the Le Conte's sparrow.

Establishment of the Canada goose as a nesting species on this refuge began in 1936 with the gift of 308 pinioned birds. A 400-acre fenced goose pasture was provided and the best nesting conditions possible were established through control of water levels and habitat. The goslings reared by this flock were allowed full freedom and it was but a short time before they were flying south in the fall. They now return to the Seney Marshes each spring, nesting throughout the refuge.

While only a part of the refuge is accessible, it is possible to drive over some of the roads built on the dikes. Information on the best areas and directions for reaching them may be secured at the refuge headquarters.

The following bird list contains 199 species which represent observations since 1935. Another 27 species, which are rare or have occurred accidentally, have been added on the last page. This list, using species names, is in accordance with the Fifth (1957) A.O.U. Check-List. The status and abundance symbols are defined as follows:

Status		Abundance
Column 1 - S - March-May		a - abundant
2 - S - June-August		c - common
3 - F - September-November		u - uncommon
4 - W - December-February		o - occasional
		r - rare

	S	S	F	W
Common Loon	c	c	u	
Red-necked Grebe	r	r	r	
Horned Grebe	o	r	u	
Pied-billed Grebe	c	u	c	
Double-crested Cormorant	r	r	r	
Great Blue Heron	c	c	c	
Black-crowned Night Heron		r	r	
Least Bittern	r	r		
American Bittern	c	c	c	
Whistling Swan	u	r	u	
Canada Goose	c	c	c	u
Snow Goose	o		u	
Blue Goose	o		u	
Mallard	c	c	c	o
Black Duck	c	c	c	o
Gadwall	r		r	
Pintail	u	r	o	
Green-winged Teal	u	o	u	
Blue-winged Teal	c	u	c	
American Widgeon	c	u	c	
Shoveler	o	r	o	
Wood Duck	c	c	c	
Redhead	o	r	u	
Ring-necked Duck	c	c	c	
Canvasback	u	r	u	
Lesser Scaup	u	r	u	
Common Goldeneye	c	o	c	o
Bufflehead	c	r	c	
Ruddy Duck	r	r	r	
Hooded Merganser	c	c	c	
Common Merganser	c	c	c	o
Goshawk	o	o	o	o
Sharp-shinned Hawk	o	o	o	
Cooper's Hawk	o	o	o	
Red-tailed Hawk	o	o	o	
Broad-winged Hawk	u	u	u	
Rough-legged Hawk	u		u	
Golden Eagle			r	
Bald Eagle	u	u	u	o
Marsh Hawk	c	c	c	
Osprey	u	u	u	
Peregrine Falcon	r	r	r	
Pigeon Hawk	o	o	o	
Sparrow Hawk	c	c	c	
Spruce Grouse	u	u	u	u
Ruffed Grouse	c	c	c	c
Sharp-tailed Grouse	c	c	c	c
Sandhill Crane	c	c	c	
Virginia Rail	u	c	u	
Sora	u	c	u	

	S	S	F	W
Yellow Rail	u	u	u	
American Coot	u	u	c	
Semipalmated Plover	u	u	u	
Killdeer	c	c	c	
Black-bellied Plover	o	o	o	
American Woodcock	c	c	c	
Common Snipe	c	c	c	
Upland Plover	o	o	o	
Spotted Sandpiper	c	c	c	
Solitary Sandpiper	c	c	c	
Greater Yellowlegs	c	c	c	
Lesser Yellowlegs	c	u	c	
Pectoral Sandpiper	u	u	u	
Least Sandpiper	u	u	u	
Dunlin	u	u	u	
Semipalmated Sandpiper	u	u	u	
Herring Gull	c	u	c	
Ring-billed Gull	c	u	c	
Bonaparte's Gull	o		o	
Common Tern	c	c	c	
Caspian Tern	o	o	o	
Black Tern	o	c	o	
Mourning Dove	o	o	o	
Black-billed Cuckoo	c	c	c	
Great Horned Owl	c	c	c	c
Snowy Owl	o		o	o
Barred Owl	r	r	r	r
Long-eared Owl	o	o	o	
Whip-poor-will	u	u		
Common Nighthawk	c	c	c	
Chimney Swift	c	c		
Ruby-throated Hummingbird		o		
Belted Kingfisher	c	c	c	
Yellow-shafted Flicker	c	c	c	r
Pileated Woodpecker	o	c	o	o
Red-headed Woodpecker	r	r	r	
Yellow-bellied Sapsucker	u	u	u	
Hairy Woodpecker	c	c	c	c
Downy Woodpecker	c	c	c	c
Black-backed Three-toed Woodpecker	r	r	r	r
Eastern Kingbird	c	c		
Great Crested Flycatcher	o	o		
Eastern Phoebe	c	c	c	
Yellow-bellied Flycatcher	o	o		
Traill's Flycatcher	c	c		
Least Flycatcher	c	c		
Eastern Wood Pewee	c	c		
Olive-sided Flycatcher	u	u		
Horned Lark	u	o	c	

	S	S	F	W
Tree Swallow	a	a	c	
Bank Swallow	c	c	c	
Rough-winged Swallow	u	u	u	
Barn Swallow	c	c	c	
Cliff Swallow	u	u	u	
Purple Martin	u	u	o	
Gray Jay	o	o	o	o
Blue Jay	u	u	c	u
Common Raven	c	c	c	c
Common Crow	c	c	c	
Black-capped Chickadee	a	a	a	a
Boreal Chickadee	u	u	u	u
White-breasted Nuthatch	o	o	u	u
Red-breasted Nuthatch	c	c	c	c
Brown Creeper	u	u	u	o
House Wren	u	u	u	
Winter Wren	o	o	o	
Long-billed Marsh Wren	u	u	u	
Short-billed Marsh Wren	a	a	a	
Mockingbird	r	r		
Catbird	o	o	o	
Brown Thrasher	c	c	c	
Robin	c	c	c	
Wood Thrush	u	u	u	
Hermit Thrush	c	c	c	
Swainson's Thrush	c	c	c	
Veery	u	u	u	
Eastern Bluebird	c	c	c	
Golden-crowned Kinglet	c	c	c	c
Ruby-crowned Kinglet	u	o	u	
Water Pipit	u		c	
Bohemian Waxwing	o		o	u
Cedar Waxwing	c	a	a	
Northern Shrike	o		o	o
Loggerhead Shrike	r	r	r	
Starling	a	a	a	c
Solitary Vireo	u	u		
Red-eyed Vireo	a	a	a	
Warbling Vireo	r	r		
Black-and-White Warbler	c	c	c	
Tennessee Warbler	c	r	c	
Nashville Warbler	a	a	a	
Parula Warbler	u	u	u	
Yellow Warbler	c	c	c	
Magnolia Warbler	c	c	c	
Cape May Warbler	c		c	
Black-throated Blue Warbler	u	u	u	
Myrtle Warbler	a	a	a	
Black-throated Green Warbler	c	c	c	
Blackburnian Warbler	u	u	u	

	S	S	F	W
Chestnut-sided Warbler	c	c	c	
Bay-breasted Warbler	c		c	
Blackpoll Warbler	c		c	
Pine Warbler	c	c	c	
Palm Warbler	c	u	c	
Ovenbird	c	c	c	
Northern Waterthrush	c	u	c	
Connecticut Warbler	o	r	o	
Mourning Warbler	u	u	u	
Yellowthroat	c	c	c	
Wilson's Warbler	u		u	
Canada Warbler	c	u	c	
American Redstart	c	u	c	
House Sparrow	u	u	u	u
Bobolink		c	u	
Eastern Meadowlark		c	o	
Redwinged Blackbird	a	a	a	
Baltimore Oriole		u	u	
Rusty Blackbird	c		c	
Brewer's Blackbird	u		u	
Common Grackle	a	a	a	
Brown-headed Cowbird	a	a	c	
Scarlet Tanager	o	c	o	
Rose-breasted Grosbeak	c	c	u	
Indigo Bunting	o	o		
Evening Grosbeak	u	u	u	c
Purple Finch	c	c	c	
Pine Grosbeak	u	r	u	c
Common Redpoll	a		a	a
Pine Siskin	c	r	c	a
American Goldfinch	u	u	u	c
Red Crossbill	u	u	o	c
White-winged Crossbill	o	o	r	c
Rufous-sided Towhee	o	o	o	
Savannah Sparrow	c	c	c	
Le Conte's Sparrow		r		
Vesper Sparrow	c	c	c	
Slate-colored Junco	a	c	a	o
Tree Sparrow	c		c	r
Chipping Sparrow	c	c	c	
Clay-colored Sparrow	o	o		
Harris' Sparrow			r	
White-crowned Sparrow	c		c	
White-throated Sparrow	c	c	c	
Fox Sparrow				
Lincoln's Sparrow	u	u	u	
Swamp Sparrow	a	a	a	
Song Sparrow	a	a	a	r
Lapland Longspur	o		o	r
Snow Bunting	c		c	a

The following 27 species are of accidental or very rare occurrence. Some have been reported regularly in the past, but not observed in recent years. Station observation data is included.

	Observations	Dates
White Pelican	4	June-August 1944
Common Egret	2	8-3-43 and 7-30-49
Green Heron	2	5-6-49 and 7-7-60
White-fronted Goose	2	Spring 1938
Red-breasted Siberian Goose	1	4-18-51
Brant	2	Fall 1937
European Widgeon	2	6-12-46 and 5-4 to 5-17-48
Barrow's Goldeneye	2	4-18-37
Oldsquaw	1	3-16-50
White-winged Scoter	7	April-May 1961
Red-breasted Merganser	8	3-25-38 and. 8-4 to 8-11-43
Turkey Vulture	1	4-23-40
Golden Eagle	1	October-November 1950
Greater Prairie Chicken		1935-1952 (*)
King Rail	4	Fall 1935, 1939, 1940, and 7-30-49
Willet	3	10-15-36 and 8-3-55
Short-billed Dowitcher	1	8-5-43
Baird's Sandpiper	3	10-12-36 and 8-26-58
Stilt Sandpiper	1	8-4-43
Marbled Godwit	1	5-18-55
Northern Phalarope	2	9-9-43 and 8-26-58
Screech Owl		Resident in 1936
Hawk-Owl		Winter resident in 1936
Short-eared Owl	1	5-6-37
Saw-whet Owl	3	9-11 to 9-30-39 and 11-10-52
Western Kingbird	1	8-24-53
Loggerhead Shrike	1	5-8-37

(*) Occurred from 1935 to 1952; last observation was 12-12-52. None known to exist in Upper Peninsula today.

RL-118-R-2
Issued: July 1954
Revised: August 1961

U. S. Fish and Wildlife Service
Department of the Interior

PUBLIC RECREATION FACILITIES AND REGULATIONS
Seney National Wildlife Refuge
Seney, Michigan

The refuge Headquarters' entrance is located on Highway M-77 approximately 5 miles south of Seney, Michigan and about 2 miles north of Germfask, Michigan. There is no charge for the use of the refuge facilities.

GUIDED AUTO TOUR
Conducted auto tours leave Refuge Headquarters at 6:00 PM, daily, seven days per week, June 15 through Labor Day. Travel will be in your own automobile. Be sure to have at least one-quarter tank of gasoline. This tour winds through the pine ridges and water impoundments of Unit I and usually lasts about one and a half hours. Wild ducks, geese, deer and other wildlife are usually seen.

SELF-GUIDED AUTO TOUR
This route is open to the public from 8:00 AM to 3:30 PM, June 15 through October 1. A free-use permit is required, which may be obtained at Refuge Headquarters. Birds, ducks, geese, deer and small animals may be seen along this 8 mile scenic drive. Travel is by your own automobile. You should have at least one-quarter tank of gasoline. The tour will take from one to two hours. Informational signs are posted at places of special interest along the route.

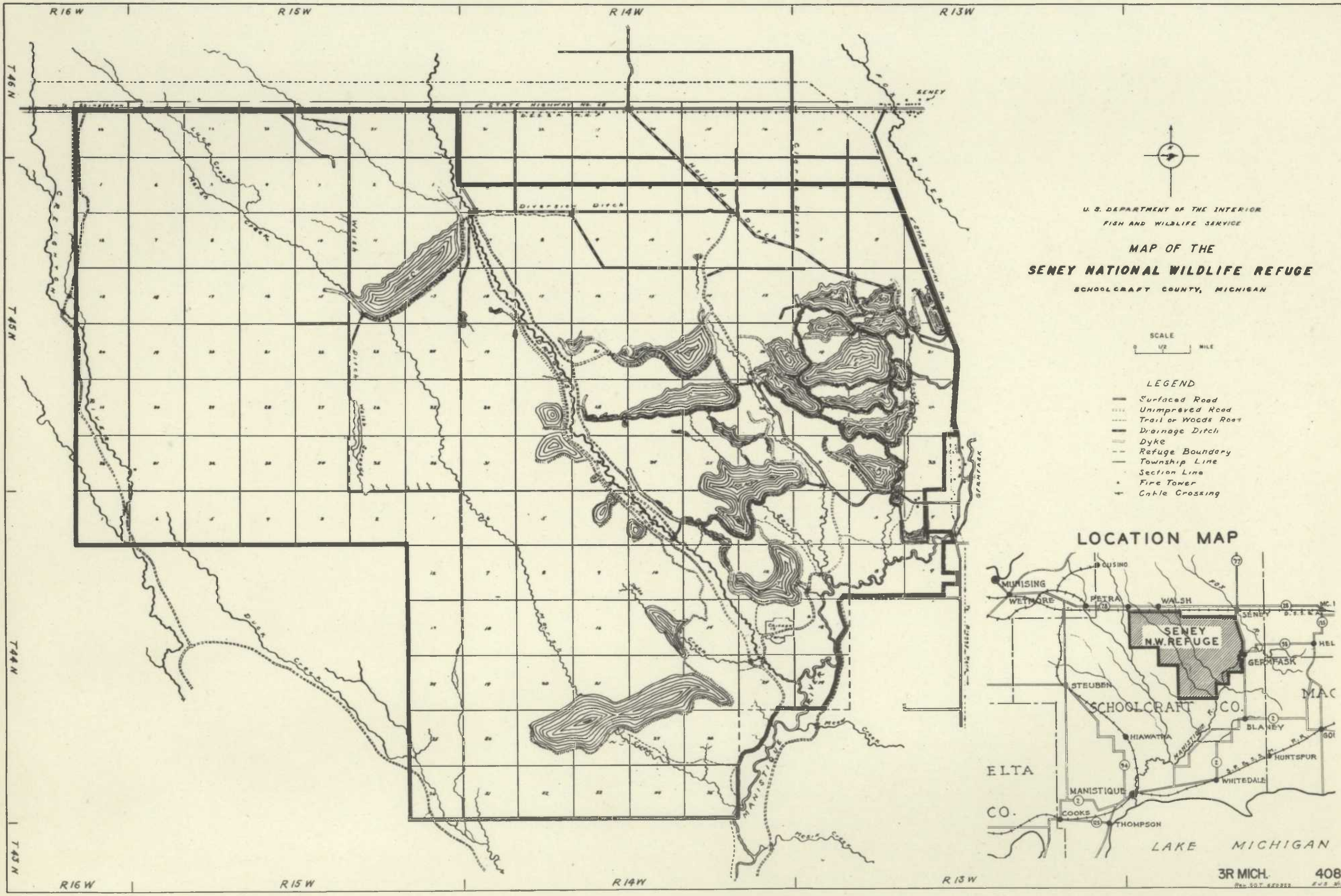
NATURE TRAIL
The Nature Trail is open at all times during daylight hours and is a one and one-quarter mile walk around one of the smaller pools. Depending on the season and time of day, wild ducks, geese and other species of wildlife may be seen. Benches are located at intervals along the path. Information signs are posted at points of special interest.

TOWER
From the Headquarters' tower one can view much of the area and its development. Several species of wildlife may usually be seen in their undisturbed environment. Children are not allowed to climb the tower unless accompanied by adults.

PICNICKING
There are three picnic sites on the refuge. The "Wigwam" recreational area is one-half mile north of Headquarters on Highway M-77. The Driggs Road area is 8 miles west of Seney at the junction of Highway M-28 and the Driggs River Road. The C-3 fishing and picnic area is 2 miles south of M-28 on the Driggs Road. The latter area is open to public use after July 1. The other two areas are open during the normal picnic season. Tables, fireplaces, water pumps and toilets are available. Overnight camping is prohibited.

FISHING
Two trout streams, the Driggs and Walsh, are open in accordance with State laws and as posted. Fishing is permitted in the two Show Pools in accordance with State laws and in C-3 Pool from July 1 through Labor Day. The Manistique River flowing through the refuge is also open to fishing in accordance with State laws. Minnows may be used for bait only in the Manistique River.

BOATING, DOGS, HUNTING, CAMPING
No boating is permitted on the refuge at any time, except on the Manistique River. Dogs must be kept on a leash. Hunting and camping are permitted only during the rifle deer season in specifically designated areas.


U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
MAP OF THE
SENEY NATIONAL WILDLIFE REFUGE
SCHOOLCRAFT COUNTY, MICHIGAN
SCALE
0 1/2 1 MILE
LEGEND
Surfaced Road
Unimproved Road
Trail or Woods Road
Drainage Ditch
Dyke
Refuge Boundary
Township Line
Section Line
Fire Tower
Cable Crossing
LOCATION MAP
MUNISING
WETMORE
PETRA
WALSH
SENEY
SENEY N.W. REFUGE
GERMFASK
STEUBEN
SCHOOLCRAFT CO.
BLANEY
HIAWATHA
HUNTSPUR
WHITEDALE
MANISTIQUE
COOKS
THOMPSON
ELTA
CO.
LAKE MICHIGAN
R16W
R15W
R14W
R13W
T46N
T45N
T44N
T43N
STATE HIGHWAY No. 28
Diversion Ditch
Walsh Ditch
Creek
RIVER
MANISTIQUE
GERMFASK
3R MICH.
408

SENEY NATIONAL WILDLIFE REFUGE

ANNUAL NARRATIVE REPORT

* 1965 *

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

SENEY, MICHIGAN

SENEY NATIONAL WILDLIFE REFUGE

PERSONNEL

Refuge Manager	John B. Hakala	
Assistant Refuge Manager	Orlynn J. Halladay	
Wildlife Biologist	Glen A. Sherwood	*
Wildlife Biologist	Gerald H. Updike	**
Refuge Forester	Roy J. Milligan	***
Refuge Clerk	Omer L. Doran	
Mechanic	George Orlich	
Maintenance Man	William G. Anderson	
Maintenance Man	Glen C. Losey	
Wildlife Aid	Gerald H. Updike	****
Wildlife Aid	Frank M. Baucom	*****
Wildlife Aid	Lee W. Mowbray	******

* * * * * * * * * * * * * * * * * *

* Transferred to Northern Prairie Wildlife Research Center, North Dakota on 8/29/65

** E.O.D. 11/21/65

*** E.O.D. 3/8/65

**** E.O.D. 6/21/65 -- Terminated 11/20/65

***** E.O.D. 6/15/65 -- Terminated 9/24/65

****** E.O.D. 6/15/65 -- Terminated 9/17/65

SENEY NATIONAL WILDLIFE REFUGE

TEMPORARY PERSONNEL

		E.O.D.	Terminated
Summer Seasonals			
Charles D. Burton	*	05-11-65	06-07-65
Leo D. Lawrence	*	04-26-65	10-26-65
Harold E. Miller	*	06-11-65	09-17-65
Herbert E. Musselman	*	05-11-65	11-11-65
Marion J. Schrock	**	03-11-65	11-17-65
Lawrence Zellar	*	06-17-65	12-17-65
Typist			
Sara Ann Gagnon		07-14-65	07-30-65
President's Youth Opportunity Program			
Leal N. Saunders		07-06-65	09-03-65

* Laborers

** Laborer Maintenance

CONTENTS

I. GENERAL

A. Weather Conditions

	Precipitation			Max.	Min.
	Month	Normal	Snowfall	Temp.	Temp.
January	35.0	1.61	2.19	40	-27
February	38.0	2.11	1.89	40	-12
March	23.5	1.44	2.08	45	-17
April	4.5	.89	2.14	69	0
May	____	5.46	2.62	79	31
June	____	2.30	3.69	87	34
July	____	1.59	2.80	86	35
August	____	4.33	3.06	91	39
September	1.5	6.87	3.14	76	25
October	.5	2.59	2.47	74	22
November	19.0	3.94	3.12	63	17
December	16.0	1.80	2.65	48	5
Annual Totals	138.0	34.93	31.85 Extremes	91	-27

The weather data listed above were collected from daily weather observations at the official weather station located at refuge headquarters.

January: Temperatures for the first 9 days ranged slightly above normal, with the highs in the upper 30's and the lows in the upper 20's. On the 10th, the temperature fell to -3 degrees. This was followed by seven more consecutive days of sub-zero readings, with the low for the month, -27 degrees, coming on the 16th. This was also our lowest reading for 1965. Snowfall was 35.0 inches, as compared to 27.0 inches a year ago. In January, 1962, 40.5 inches of snowfall was recorded. At the close of the month the average level of snow on the ground was 24.0 inches, as compared to 18 inches in 1964.

February: Temperatures were about the same this month as in January. Sub-zero temperatures were recorded on 8 days of the period, with the low of -12 degrees being recorded on the 4th. Snowfall almost doubled that of a year ago, with 38.0 inches falling as compared to 20.5 inches in 1964. Snow depth on the ground on the 20th and 21st was 30 inches, high for the year. However, at the close of the period, there were 21.0 inches of snow on the ground.

March: Daily maximum temperatures ranged in the upper 30's. The lows varied from 33 degrees on the 5th to a -17 degrees on the 21st. There were eight days of sub-zero temperatures recorded, all coming consecutively, beginning on the 20th and lasting through the 27th. These were the last sub-zero temperatures prior to breakup. A total of 23.5 inches of snow fell during March, as compared to 22.0 inches a year ago. At the close of the month there were 19 inches of snow on the ground. This was five inches more than a year ago.

April: Temperatures began climbing rapidly during the month, with maximum readings ranging from 26 degrees on the 1st to 69 degrees on the 29th. Lows ranged from zero on the 3rd to 37 degrees on the 29th. Snowfall totaled 4.5 inches. The last traces of snow melted on the 23rd. This was much later than normal, as the snow usually is gone completely between the 5th and 10th. Precipitation totalled .89 inches; most of this resulted from snowfall.

May: Temperatures ranged from the upper 60's to the mid 70's. The high of 79 degrees was recorded on the 8th and 25th. Minimum temperatures remained in the upper 30's and 40's with four nights remaining in the 50's. Rainfall, totalling 5.46 inches, was recorded on 14 days of the month. This was well over the norm of 2.62 inches. During the same period a year ago, a total of 3.68 inches of rain fell. Wind and rain were present most of the period. On May 28 the last snowfall of the spring season occurred.

June: Temperatures ranged from the middle 60's to the high 80's. High readings were approximately the same this month as they were a year ago. Precipitation was slightly less than that of June, 1964 -- 2.30 inches this year versus 2.72 inches a year ago.

Rainfall was recorded on 11 days of the period; the same as last year. High winds kept the ground dry and fire danger remained above normal.

July: Twenty-nine days of 70 degrees or higher, with five days in the 80's, were recorded this period. On only two days the temperature fell to the 60's, with both days being recorded at 69 degrees. Rainfall was very low this month as compared to a year ago -- 1.59 inches versus 3.71 inches in July of 1964. The ground was very dry, with most lawns turning brown from lack of moisture. Winds were present most days of the period to help evaporate what little rainfall that did occur. Fire danger ratings remained high.

August: Temperatures ranged in the 70's and 80's with the high of 91 degrees occurring on the 14th. Rainfall was recorded on 15 days of this period, totalling 4.33 inches. In August, a year ago, 3.89 inches of precipitation were recorded. Fire danger ratings dropped to low during the month. Rainfall occurred over the month at 1-3 day intervals and kept the ground moist at all times.

September: Temperatures began falling during the period with a low of 25 degrees being recorded on the 27th. The high of 76 degrees came on the 4th. Precipitation was observed on 20 of the 30 days of the month. A total of 6.87 inches fell, as compared to 3.50 inches during the same period a year ago. Normal precipitation is 3.14 inches. On the 26th, the first snowfall of winter was recorded at 1.5 inches. No snow fell during September a year ago. At the close of the period the ground was completely water soaked. Fire danger ratings remained low.

October: Temperatures were normal this period, ranging from a high of 74 degrees on the 18th and 19th to a low of 22 degrees on the 29th. Precipitation was recorded on 19 days during the month, with the total rainfall being 2.59 inches. However, this was only .12 inches above normal and .41 inches more than that recorded during the same period a year ago. Snowfall was recorded at .5 inches, as compared to 2.0 inches a year ago. Water levels remained high throughout the lowland areas. Fire ratings remained low.

November: Temperatures ranged from a high of 63 degrees on the 3rd to a low of 17 degrees on the 30th. From the 8th, throughout the remainder of the period, temperatures were in the high 30's, with 3 days reaching the low 40's. Again, precipitation occurred on 20 of the 30 days with a total of 3.94 inches being recorded. During November of a year ago 3.02 inches were observed. Nineteen inches of snow fell during the period. A year ago, 23.0 inches of snow fell and the ground remained covered from the 18th on. This year, snow remained on the ground after November 14 and fire danger ratings observations were then discontinued. At the close of the period, there were 4.5 inches of snow on the ground.

December: Temperatures ranged from a high of 48 degrees on the 31st to a low of 5 degrees on the 25th. The 31st reading was a record for that date. Records were set in many Upper Peninsula cities on the 31st, also. There were 1.80 inches of precipitation recorded with 16.0 inches of snowfall. Seven inches of snow covered the ground for five days of the period but at the close of the month only one-half inch of snow remained. Approximately 90% of the ground was free of snow. During the same period a year ago, 2.21 inches of precipitation and 44.5 inches of snowfall were recorded. Snowfall was off almost one-third. Total snowfall was 37.0 inches for the fall period and 138.0 inches for the calendar year.

B. Habitat Conditions

1. Water

Water supplies for 1965 were more than adequate for the second consecutive year. Snowfall for the calendar year was 138.0 inches, approximately the same as 1964, but much higher than the 87.95 inches recorded in 1963. Precipitation totalled 34.93 inches in 1965, an increase of 2.54 inches over the 1964 total of 32.39 inches. Annual normal precipitation is 31.85 inches.

Spring break-up and peak run-off took place during the latter half of April. No serious damage occurred to refuge dikes or water control sturctures nor were there any problems encountered. Minor bank erosion occurred below A-1 and I-1 control structures.

Certain pools were drawn down in 1965 for scheduled improvements. I-1 Pool was lowered during the summer to facilitate erosion control work on the newly constructed nesting islands. Upper Goose Pen was down briefly for painting and repair of the water control structure. Lower Goose Pen was drawn down during August and September for extensive habitat improvement work.

All pools were raised as rapidly as possible, from the lower winter levels, to spring nesting levels in an effort to accelerate spring break-up and reduce mammalian depredation. After nesting had been completed, pools were lowered to encourage the growth of aquatic vegetation.

All pools were maintained at or just below recommended levels throughout the year.

Permanent freeze-up did not occur until the third week of December -- three weeks later than 1964. Fluctuating cold and warm weather with rain delayed the freezing process.

2. Food and Cover

Generally, adequate food and cover were available for all species

of wildlife. Early returning geese found natural food in short supply; therefore, refuge personnel put out the corn for them.

Waterfowl made good use of the aquatic plants when pool levels were lowered at the end of June. Canada (Branta canadensis) and Blue-winged Teal (Anas discors) were especially fond of the stands of needle rush (Eleocharis acicularis) which covered exposed sand and mud flats.

Lower water levels on F-1 Pool were attractive to Ring-necked Ducks (Aythya collaris) and Baldpate (Mareca americana). Ring-necked Ducks were, also, frequently observed feeding on wild celery (Vallisneria spiralis) in J-1 Pool. Canada Geese, attracted to open water and the excellent stands of bushy pondweed (Najas flexilis), remained on E-1 Pool until late November. Migrant Canadas made heavy use of T-2 Pool for loafing and feeding during early fall.

Canada Geese, Snow Geese (Chen hyperborea) and Blue Geese (Chen rossii) concentrated on the refuge farm units. Buckwheat, sweet clover and oats at sub-headquarters field held many geese for several weeks. Tag alder (Alnus rugosa) was removed from 10 acres on the north side of Lower Goose Pen, thus, opening access to Smith Field. The southern slope of the field was rehabilitated under Soil and Moisture Funds and planted to winter rye which attracted geese. Chicago Farm was highly attractive to geese until all grain had been utilized.

Diversion Unit did not receive the heavy use this year that it has in past years. Heavy August rains prevented normal farming operations and standing crops were not as attractive to the geese. Geese were often observed at the Walsh Unit but in reduced numbers as compared to 1964.

White-tailed Deer (Odocoileus virginianus) were observed on all farm units frequently. As many as 25 deer were sighted at Chicago Farm in one evening.

Sandhill Cranes (Grus canadensis) and Sharp-tailed Grouse (Pedioecetes phasianellus), as in past years, made extensive use of all farm units.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

a. Geese

The first arrival of a Canada Goose (Branta canadensis maxima)

was observed near refuge headquarters on March 13. All pools were completely ice-covered and snow depths averaged 15 inches at the time. The March 13 appearance is 11 days later than the previous year.

Substantial numbers of returning geese were held up 18 days due to the "rough" spring. By April 12 returning birds totaled 375. A final tally of returning Seney geese was recorded at 550 on April 19.

Egg laying commenced on April 12 with 10 inches of snow on the ground. The first brood of geese to hatch was observed at Upper Goose Pen Pool on May 17. In 1964 the first brood came off on May 13.

Nest depredation by Coyote (Canis latrans) and Raccoon (Procyon lotor) was reduced from the extreme high level of 1964. They destroyed 61 nests (27%) and 267 eggs (25%) in 1965. No geese were killed on their nests.

Eggs hatched totaled 676 compared with 631 in 1964. The 1964 and 1965 nesting survey summaries are shown in Table 1.

Table 1. A Comparison of Results of the 1964 and 1965 Canada Goose Nesting Surveys at Seney Refuge.

	1964		1965	
Subject	Number	Percent	Number	Percent
Nests Destroyed	90	38.0	61	27.0
Nests Deserted	7	3.0	12	5.0
Nests Hatched	138	59.0	152	68.0
Total Nests	235	100.0	225	100.0
Eggs Destroyed	410	37.0	267	25.0
Eggs Unhatched	55	5.0	92	8.0
Eggs Deserted	25	2.0	43	4.0
Eggs Hatched	631	56.0	676	63.0
Total Eggs	1,121	100.0	1,078	100.0

No severe disease losses occurred to goslings. Last year the entire nesting effort was nearly wiped out when disease claimed 500 goslings between June 3-10.

Fall migrant numbers of geese were much reduced. Peak populations of Canadas, Blues and Snows were recorded at 4,400, 150 and 100 respectively (Table 2). Consequently fall use days were reduced from 335,000 last year to 234,000 this year (Figure 1). Many migrating flocks were observed flying high over the refuge and not stopping as they had in past years. At Allegan State Game Area, in southwestern lower Michigan, peak goose numbers were less than one-half the normal.

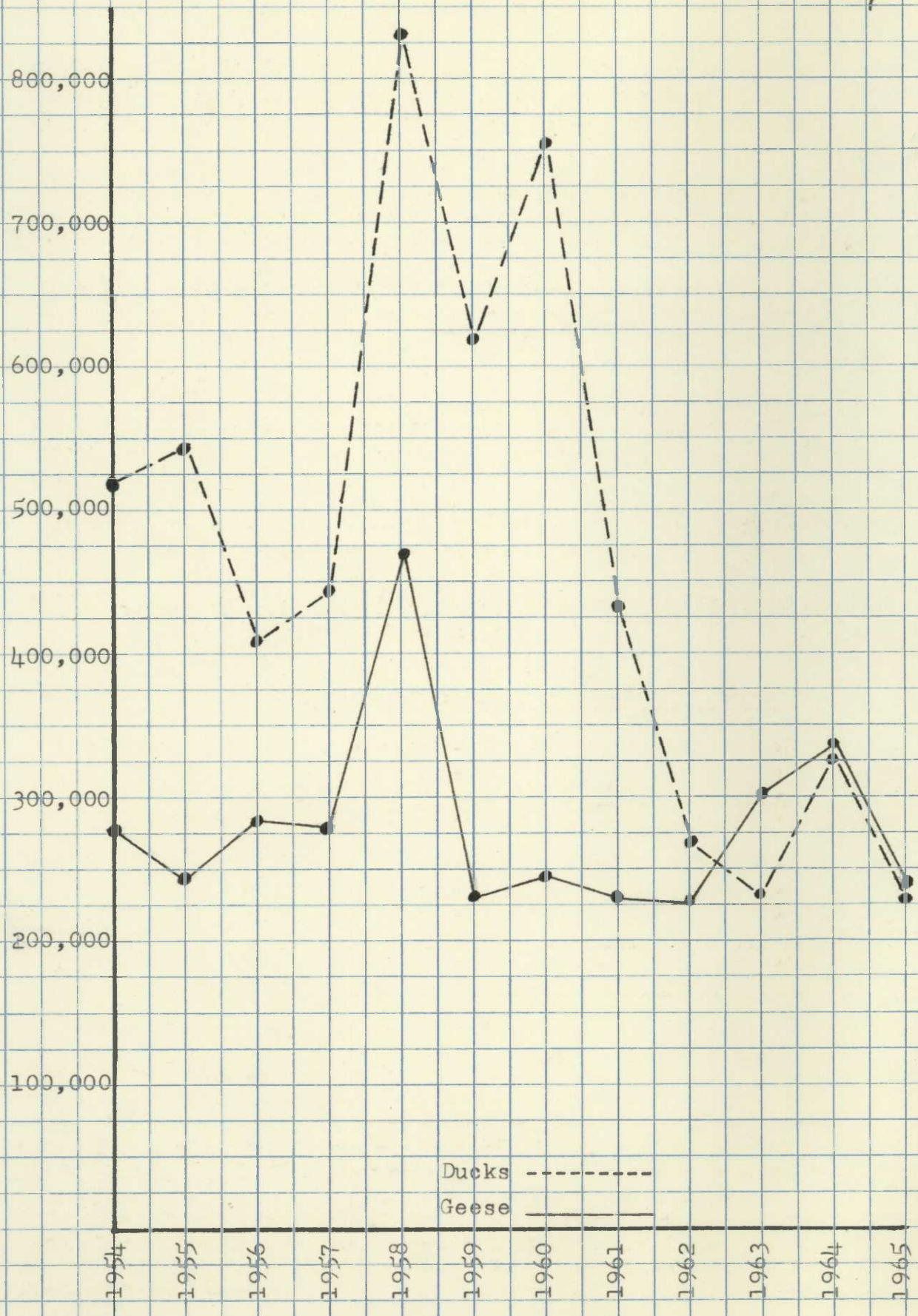


Figure 1. Goose and Duck use days, September - December, 1954 - 1965.

A collared Seney goose which was observed here November 16 was shot near Camden, Tennessee on November 29.

The last of the geese departed from the refuge November 30, one day later than last year. Twenty-one Canada Geese remained on a farm six miles east of the refuge until December 24.

Again this year there was evidence that a few flocks of Lesser Canada Geese (Branta canadensis interior) and Richardson's Geese (Branta canadensis hutchinsii) paused briefly in the area. Their stop-overs are rather rare at Seney.

Snow and Blue Goose numbers were much lower than the unusually high numbers recorded in 1964. Their main influx into the refuge, and movement through this part of the Upper Peninsula, came the first week of October. This is the same as last year but much earlier than is usual. Hunters in the area shot a few of these birds early in the goose season. One immature Blue Goose remained near headquarters until November 18.

Table 2. Peak Fall Goose Numbers at Seney Refuge, 1961 - 1965.

Species	1961	1962	1963	1964	1965
Canada Goose	7,000	3,200	4,400	6,000	4,400
Blue Goose	20	13	150	600	150
Snow Goose	10	7	100	400	100
Total Geese	7,030	3,220	4,650	7,000	4,650

Banding efforts in 1965 resulted in the capture of 275 Canada Geese. Of the total, 168 were banded as the others were retraps. Among the retrapped birds, the oldest bands were found on a pair of geese which were banded at Seney on July 22, 1955. Table 3 shows the results of goose trapping efforts since 1956.

Table 3. Seney Canada Goose Banding and Kill Data, 1956 - 1965.

Year	Number Banded	Number Retraps	Total Trapped	Total Returns	Direct Returns	% Direct Returns
1956	79	1	80	23	15	19.0
1957	42	6	48	16	10	23.8
1958	186	19	205	37	20	10.6
1959	230	46	276	26	16	8.7
1960	160	227	387	12	6	3.8
1961	119	64	183	7	7	6.7
1962	345	86	431	47	19	5.5
1963	219	155	374	36	15	6.8
1964	316	225	541	46	15	4.7
1965	168	107	275	--	--	---

b. Ducks

The duck population at Seney dropped to an all time low after making some recovery in 1964 (Table 4). Total production was calculated at 1,005, a decrease of more than 30% from the 1,546 ducks produced in 1964. Fewer breeding Black Duck (Anas rubripes) and Mallard (Anas platyrhynchos) pairs and the late cold spring account partly, or in whole, for the reduced numbers.

Table 4. Peak Duck Numbers and Use Days for May through August, 1958 - 1965.

Year	Population Peak	Use-Days
1958	6,755	704,040
1959	6,686	571,582
1960	3,445	239,820
1961	4,100	300,521
1962	3,670	266,700
1963	1,600	179,313
1964	2,365	220,788
1965	1,595	157,624

Table 5 shows the peak fall duck population and Figure 1 compares fall duck and goose use days.

Table 5. Peak Fall Duck Populations at Seney Refuge, 1963 - 1965.

Species		1963	1964	1965
Anas platyrhynchos	Mallard	1,000	1,000	650
Anas rubripes	Black Duck	900	1,000	800
Anas acuta	Pintail	0	15	5
Anas carolinensis	Green-winged Teal	300	300	150
Anas discors	Blue-winged Teal	300	500	500
Mareca americana	Baldpate	325	800	150
Aix sponsa	Wood Duck	300	450	150
Aythya americana	Redhead	15	10	10
Aythya collaris	Ring-neck	3,000	3,200	4,500
Aythya valisineria	Canvasback	0	0	0
Aythya affinis	Scaup	10	250	25
Glaucionetta clangula	Goldeneye	50	50	50
Glaucionetta albeola	Bufflehead	40	100	75
Erismatuca jamaicensis	Ruddy	0	0	0
Lophodytes cucullatus	Hooded Merganser	250	150	150
Mergus merganser	Common Merganser	250	140	150

Further evidence of the decrease in duck numbers was reflected in our banding results (Table 6). Contrary to past years, Wood Ducks

(Aix sponsa) accounted for nearly one-half the ducks banded. This was due, in part, to good catches of "woodies" at the cannon-net site.

Table 6. A Comparison of Duck Banding Results at Seney, 1963 - 1965.

Item	1963	1964	1965
Ducks Banded	170	461	433
Predation Loss	33 (19.4%)	44 (9.5%)	17 (3.9%)
Drowning Loss	2 (01.2%)	5 (1.1%)	1 (0.4%)
Traps in Use	14	15	13
No. Trapping Days	59	64	61
Man Hours Expended	230	200	250
Ducks Banded/Man Hour	1.4	2.3	1.7
Ducks/Trap/Day	.21	.48	.53
Approx. Total Cost	$630.00	$600.00	$650.00
Cost/Banded Duck	$ 3.71	$ 1.30	$ 1.50

Figure 2 shows migration periods of the major species through the refuge. Many of the species reached a population peak about the middle of October.

c. Coot

Coot (Fulica americana) are relatively rare at Seney. Their peak fall numbers were 50, an increase over the 30 of 1964 but much lower than the 1963 high of 300.

d. Swans

Seven Whistling Swans (Olor columbianus) were observed during the spring migration. Two of these swans were seen on F-1 Pool June 4.

Only two swans were noted during the fall migration period. They were adults which spent nearly three weeks on C-3 Pool in October and November.

2. Other Waterbirds

The first returning Common Loons (Gavia immer) were seen on G-1 and F-1 Pools on April 25. First observations for the past two years were recorded on April 13. Twelve pairs nested on the refuge and raised approximately 18 young. The first chick was observed on June 11. Total refuge population was estimated to be 40 at the end of the summer period. Last loon observations was recorded on September 8.

Sandhill Cranes were first observed over M-2 Pool on April 8 -- two days later than in 1964. They were observed frequently during the year. Following the hatch, the estimated population was 90,

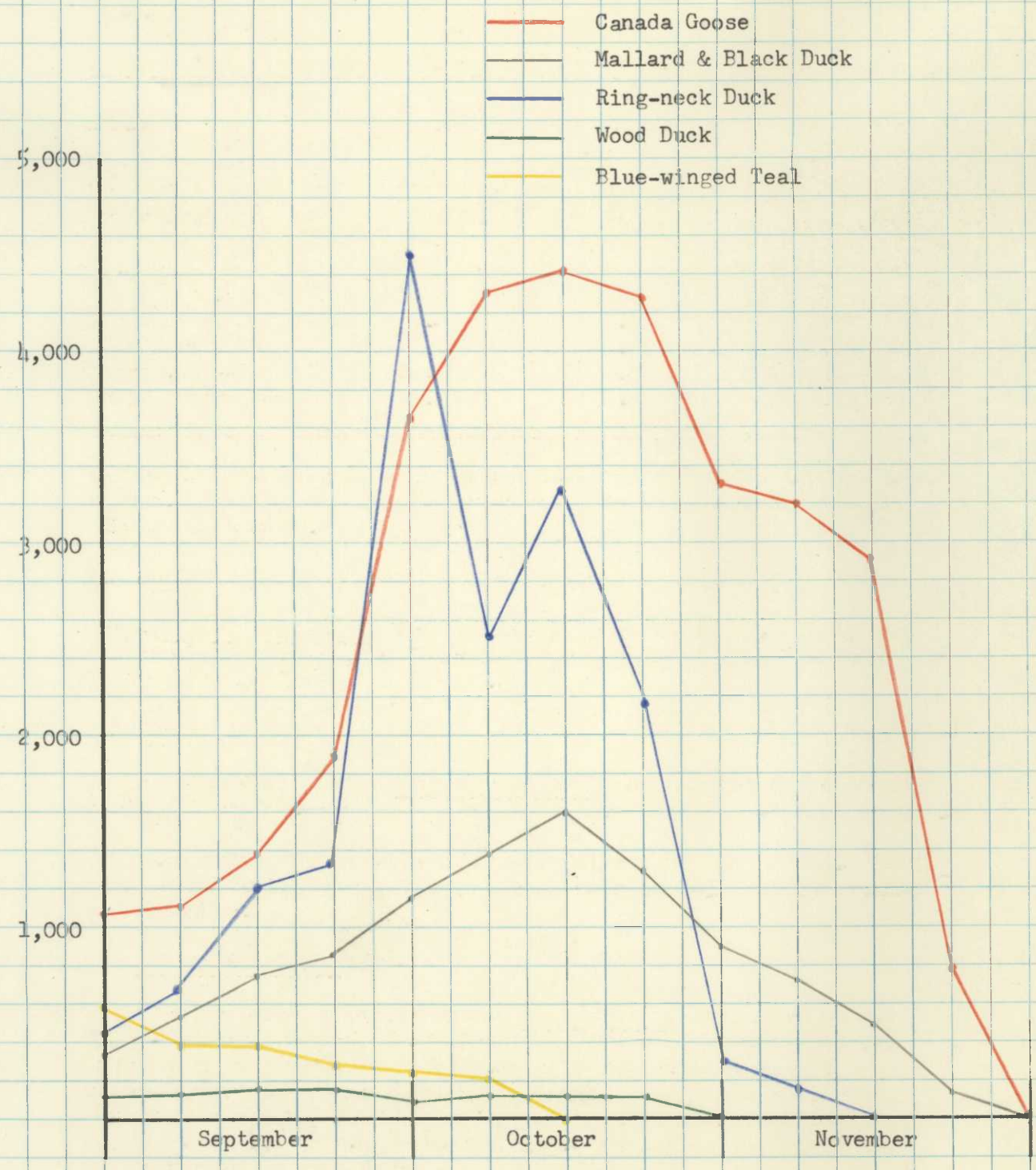


Figure 2. Migration Pattern of Waterfowl Through Seney Refuge, Fall Period, 1965.

the same as a year ago. The cranes concentrate on and make heavy use of refuge farm units before leaving in the fall. Last observation of cranes (7) was September 16, much earlier than the October 14 observation of 1964.

April 8 was the arrival date of the Great Blue Heron (Ardea herodias). Their peak numbers remained at an estimated 100, and the last observation was made on November 16 at refuge headquarters.

Pied-billed Grebes (Podilymbus podiceps podiceps) were observed at frequent intervals from April until October. The first spring sighting came on April 16. An estimated 60 were using the refuge by fall.

American Bitterns (Botaurus lentiginosus) were noted quite frequently by refuge personnel. The first observation was made on April 16 and approximately 125 bitterns were using the refuge at the end of the summer period.

No Virginia Rails (Rallus limicola) or Sora Rails (Porzana carolina) were seen during the year.

3. Shorebirds and Gulls

The first Common Snipe (Capella gallinago) was noted on April 22 near headquarters. Their "winnowing" again continued well into July. Refuge personnel observed many snipe at Lower Goose Pen during the summer draw down. Peak numbers were estimated at 300.

Greater Yellowlegs (Totanus melanoleucus), Killdeer (Charadrius vociferus), Spotted Sandpipers (Actitis macularia), Solitary Sandpipers (Tringa solitaria), Black Terns (Sterna hirundo), Forester's Terns (Sterna forsteri), Ring-billed Gulls (Larus delawarensis) and Herring Gulls (Larus argentatus) were noted on the refuge from time to time.

B. Upland Game Birds

Woodcock (Philohela minor) have received more attention at Seney during the past few years. The Woodcock singing ground count, conducted on May 10, recorded 26 "peenting" birds. This is an increase of 16 over the 1964 count. Peak fall numbers were estimated at 3,500, but no intensive inventory work was conducted. Frank Baucom, Wildlife Aid, made a brief study of Woodcock habits and habitat (see Seney Refuge files).

Sharp-tailed Grouse numbers appeared to be unchanged from a year ago. Dancing ground counts tallied 84 birds this year compared to 81 in 1964. Two new dancing grounds were located. An estimated 250 were using the refuge in early fall.

Incidental observations of Ruffed Grouse (Bonasa umbellus) indicated that their numbers were about the same as in 1964. An estimated 250 were on the refuge starting the fall period.

Observations of Spruce Grouse (Canachites canadensis) were slightly reduced from the record number of sightings for 1964. However, it is estimated that the fall population has remained at 125 grouse.

C. Big Game Animals

The first deer observation was made April 19, one week later than last year. Deer winter in the Blaney yards south of the refuge and this year, late season snow storms delayed their spring movement. The first fawn was observed on June 7. Observed deer totaled 576 in 1965, a decrease of 25% from 1964.

Deer numbers were estimated at 1,800 just before the hunting season. This figure is based on observations and two deer drives conducted by state and refuge personnel with 60 convicts assisting. The population figure represents a decrease of 700 from the previous year.

Hunting conditions were fairly good and hunters removed 210 head, 40 more than in 1964.

By the end of the year, many deer had left the refuge for wintering areas. However, some animals remained near refuge headquarters and the Manistique River as snow cover had not yet restricted their movement.

Black Bear (Ursus americanus) observations "jumped" to a total of 13 this year, as compared to three for the previous two years combined. The increase is believed to be due, in part, to greatly increased hunting efforts with dogs near the refuge. One bear was taken during the hunting season and an estimated 20 were using the refuge at the end of the period.

No Moose (Alces alces) or their tracks were noted on the refuge in 1965. Moose observations are rare in this area.

D. Fur Animals, Predators, Rodents and Other Mammals

Seventy-four Otter (Lutra canadensis) observations were made, a decrease of 22 from 1964. The total refuge population was estimated at 150. No Otter have been removed since the trapping season of 1960.

Beaver (Castor canadensis) numbers appear to have increased. A large Beaver has taken a liking to the headquarters, to the delight of tourists and dismay of our trees which had to be fenced. Beaver activities have created large shallow water impoundments in the interior areas which will be beneficial to waterfowl in the spring.

Beaver trapping was closed in Schoolcraft County during 1965, but the state has proposed a spring trapping season for 1966. Refuge Beaver trapping was closed, also, in 1965 and no definite plans have been made for 1966.

Muskrat (Ondatra ziberthicus) numbers remain low at approximately 1,000 but is was estimated that an increase of 20% had taken place over the previous year. Extensive ditching in the cattail (Typhia spp.) marshes might be needed to increase the Muskrat population.

Mink (Mustela vison) and Weasel (Mustela spp.) were noted infrequently throughout the year. Mink activity was more apparent than in 1964. No Mink were removed in 1965.

Woodchuck (Marmota marmox) were frequently observed along dike roads from the first sighting on March 31 until early August. They are rarely seen from August until freeze-up.

The Striped Skunk (Mephitis mephitis) is not a numerous species in this area. The only observation was of one caught in a predator trap.

Refuge predators include Coyote, Red Fox (Vulpes fulva), Bobcat (Lynx rufus) and Raccoon. Fox and Bobcat numbers are low and they are not presently a problem species. Populations of Coyote and Raccoon remained at the dangerously high levels of 1964. They both caused extensive losses to goose nests and Raccoon killed 17 ducks during the banding operation. An extensive trapping effort in 1964 did reduce predator numbers in the more intensive goose nesting areas. During this year, refuge personnel and one permittee trapper removed 28 Raccoon, 25 Coyote, 3 Bobcat, 1 fox and 1 skunk. Six Porcupine (Erethizon dorsatum) were accidentally trapped. A small Black Bear cub, also became caught in a Coyote trap but was released unharmed.

No observations of Gray Wolf (Canis lupus) were made. One of these rare creatures was observed in 1964.

Observations indicate that Varying Hare (Lepus americanus) numbers have increased during 1965. The spring population was approximately 1,000.

Other mammals observed throughout the year include Red Squirrels (Tamiasciurus hudsonicus), Gray Squirrels (Sciurus carolinensis), Least Chipmunks (Tamias minimus), Eastern Chipmunks (Tamias striatus), bats (Myotis spp.), mice (Peromyscus spp.) and voles (Microtus spp.).

E. Hawks, Eagles, Owls, Crows and Ravens

The Marsh Hawk (Circus cyaneus) was the most abundant hawk again

in 1965. On several occassions, a Marsh Hawk was seen chasing Wood Ducks from the cannon-net site. Other hawks observed include the Pigeon Hawk (Falco columbarius), Sparrow Hawk (Falco sparverius), Rough-legged Hawk (Buteo lagopus), Broad-winged Hawk (Buteo platypterus), Osprey (Pandion haliaetus) and Sharp-shinned Hawk (Accipiter striatus).

Bald Eagles (Haliceetus leucocephalus) were seen frequently during the spring-summer-fall period and infrequently during the winter. Active nests were again found in the familiar locations on B-1 and E-1 Pools. The C-2 nest was not active this year.

One eaglet did reach flight stage from the B-1 nest. Results of nesting success at E-1 are not known. Total refuge population in 1965 was ten, one more than 1964.

Of interest is the observation of an adult Bald Eagle chasing an Osprey over I-1 Pool on April 24. The eagle dove and forced the Osprey to release a fish it had been carrying. The eagle then promptly recovered the fish and proceeded on its way.

Only one Snowy Owl (Nyctea scandiaca) was observed on the refuge this year, that one being near C-3 dike on December 9.

Great Horned Owls (Bubo virginianus) and Barred Owls (Strix varia) were seen and heard infrequently.

Crows (Corvus brachyrhynchos) were abundant in the spring and caused some egg loss among the early nesting geese. During April 135 Crows were captured with a cannon-net, thus, providing blood samples for the Leucocytozoon study. An injured Crow spent the summer near the student cabin and apparently recovered enough to leave in the fall.

Ravens (Corvus corax) were commonly observed and heard throughout 1965.

F. Other Birds

Spring arrivals of some of the other birds, as recorded by refuge personnel, are shown in Table 7.

Table 7. Spring Arrival Dates of Birds at Seney Refuge, 1965.

4-4	Red-winged Blackbird	Agelaius phoeniceus
4-7	Slate-colored Junco	Junco hyemalis
4-8	Robin	Turdus migratorius
4-8	Bronzed Grackle	Quiscalus versicolor
4-11	Cowbird	Molothrus ater
4-13	Purple Martin	Progne subis
4-18	Belted Kingfisher	Megaceryle alcyon

4-21	Chipping Sparrow	Spizella passerina
4-21	Tree Sparrow	Spizella arobrea
4-22	Common Snipe	Capella gallinago
4-28	Eastern Meadowlark	Sturnella magna
4-28	Hermit Thrush	Hylocichla guttata
5-3	Brown Thrasher	Toxostoma rufum
5-9	Nashville Warbler	Vermivora ruficapilla
5-9	Myrtle Warbler	Dendroica coronata
5-9	Spotted Sandpiper	Actitis macularia
5-9	Eastern Kingbird	Tyrannus tyrannus

A wide variety of small passerine birds are present during the brief summer months. Tourists from many parts of the nation come to Seney expressly in hopes of seeing the LeConte's Sparrow (Passerherbulus caudacutus) or other unique birds.

Results of the 1965 Christmas Bird Count are shown in Table 8.

Table 8. Results of the 1965 Christmas Bird Count

Species		Number
Branta canadensis	Canada Goose	24
Haliaeetus leucocephalus	Bald Eagle	2
Bonasa umbellus	Ruffed Grouse	3
Dryocopus pileatus	Pileated Woodpecker	1
Dendrocopus villosus	Hairy Woodpecker	3
Dendrocopus pebescens	Downy Woodpecker	4
Perisoreus canadensis	Canada Jay	2
Cyanocitta cristata	Blue Jay	1
Corvus corax	Raven	31
Corvus brachyrhynchos	Crow	4
Parus atricapillus	Black-capped Chickadee	49
Sitta carolinensis	White-breasted Nuthatch	1
Sitta canadensis	Red-breasted Nuthatch	1
Lanius exiubitor	Northern Shrike	1
Sturnus vulgaris	Starling	27
Pinicola enucleator	Pine Grosbeak	5
Acanthis flammea	Redpoll	68

Totals: 17 species and 117 individuals

First Snow Buntings (Plectrophenax nivalis) back this fall were noted on October 21. This compares with October 19 in 1964, October 21 in 1963 and October 23 in 1962.

Of more than casual interest is the observation made on May 3 of an immature Scissor-tailed Flycatcher (Muscivora forficata) by

Glen A. Sherwood and John B. Hakala. This is possibly the first observation of this species in Upper Michigan and Glen was fortunate enough to get a good picture of the bird.

G. Fish

Michigan Department of Conservation fishery biologists netted fish from a number of refuge pools in April and May. They removed 747 Northern Pike (Esox lucius), 252 perch (Perca spp.), 49 bullheads (Ictalurus spp.) and 10 suckers (Catostomus spp.). The pike catch is down from the 1964 total of 1,014. Under a cooperative agreement the legal sized pike (20 inches and over) were placed in the refuge Show Pools (179 in 1965) for public fishing use. The remaining pike were released in nearby Upper Peninsula lakes. All other fish were placed in the Show Pools. A summary of fish removals is given in Table 9.

Table 9. Fish Removal Record from Refuge Pools, 1965.

Date	Pool	Species Removed			
		Northern Pike	Perch	Bullheads	Suckers
4-19	E-1	37	80	4	
4-20	A-1	3			
4-20	E-1	43	15		
4-20	F-1	38			
4-20	H-1	11			
4-21	A-1	14			
4-21	B-1	17			
4-21	E-1	32	25		
4-21	F-1	2			
4-21	H-1	9			
4-22	A-1	1			
4-22	B-1	13			
4-22	E-1	79	15		
4-22	F-1	8			
4-22	G-1	8	2		
4-23	B-1	27			
4-23	E-1	39	5		
4-23	F-1	12			
4-23	G-1	3			
4-26	B-1	56			
4-26	D-1	28	5		5
4-26	E-1	51	10		5
4-26	F-1	11			
4-27	C-1	7	30	20	
4-27	D-1	7			
4-27	E-1	11			
4-27	M-2	10			
4-28	E-1	18	65	25	
4-28	M-2	12			

Date	Pool	Species Removed			
		Northern Pike	Perch	Bullheads	Suckers
4-29	B-1	27			
4-29	D-1	8			
4-29	E-1	8			
4-29	M-2	14			
4-30	B-1	9			
4-30	D-1	18			
4-30	C-2	2			
4-30	M-2	13			
5-3	B-1	14			
5-3	E-1	5			
5-3	H-1	5			
5-3	M-2	17			
	Totals	747	252	49	10

Table 10. Plantings of Northern Pike taken from Refuge Pools, 1965.

Water	County	Description	Number	Date Planted
Macaulay Marsh Round Lake	Luce	45-12-Sec.23	88	4/27/65
Display Pool Seney Refuge	Schoolcraft	45-13-Sec.16	169	4/27/65
Wiskin Marsh Round Lake	Luce	45-11-Sec.20	19	4/30/65
Satago Lake	Mackinac	42-4-Sec.36	175	4/23/65
Brevort Lake	Mackinac	42-5-Sec.36	60	4/23/65
Dana Lake	Delta	43-19-Sec.24	106	5/5/65
Display Pool Seney Refuge	Schoolcraft	45-13-Sec.16	10	5/4/65
Betsy River Flowage	Chippewa	50-6-Sec.21	119	5/4/65

H. Reptiles and Amphibians

Spring Peepers (Hyla crucifer) were first heard on April 23 as compared to April 16 in 1964. The first Painted Turtle (Chrysemys picta) was observed on April 19, Eastern Garter Snake (Thamnophis sirtalis sirtalis)on April 20 and Snapping Turtle (Chelydra serpentina) on April 28.

There were 16 species of "herps" identified by Wendell Johnson, zoology graduate student at Michigan State University, in 1964. No such study was undertaken in 1965.

During July and August, Zack Taylor, commercial turtle trapper from Hart, Michigan, removed 64 Snapping Turtles. Forty-two of the turtles weighed a total of 629 pounds (15 pound average) with the largest "weighing in" at over 30 pounds.

Last "herp" observation of the year (a Painted Turtle) was made in September.

I. Disease

Approximately 75 goslings died of disease during May and June in comparison to the 500 which died in 1964. A parasitic blood disease (Leucocytozoon) transmitted by blackflies (Simulium spp. or Cnephia spp.) was the probable cause of the 1964 die-off. Many of the dead 1965 goslings were found to have contacted Leucocytozoon and Aspergillosis but exact cause of death was not determined.

It has been noted that each summer a few geese become crippled for a short time. Most geese recover but causes or effects of the disease are not known.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

We are pleased to report significant progress in the area of physical development. However, we cannot relax as this represents only a few grains of sand in the mountain to be moved.

1. Island Improvement

Spring winds, coupled with the water being held at nesting level, resulted in considerable erosion on several of the new islands in I-1 Pool. It was necessary to do additional planting of rushes and sedges around the base of these islands. This was done in mid-July, following the nesting period. The newly received assault boats were very useful in this operation.

Mr. Sherwood's studies have shown that the experimental island construction work in I-1 Pool has greatly enhanced goose nesting success. Therefore, a similar project was undertaken during August and September at the Lower Goose Pen. Following drainage of the pool, the spoil bank along the pool side of the ditch was leveled as it provided an access for predators. Next, 13 islands along the north side of the pool were removed as they, too, were subject to predation. Finally, work began on the construction of 22 new

islands. Twenty of these were arranged in pairs, being spaced approximately 200 feet between pairs and 50 feet between islands within a pair. The John Deere 1010 with root rake was used to push logs and stumps into piles to form the base of the islands. Earth was pushed up on them with the TD-14 to complete the islands. They were given a heavy mulching of hay to aid in holding soil and establishing vegetative cover.

2. Trap Site Development

A portable trap of wire mesh over a metal frame was constructed to catch some of the crows that gather here in the spring. It was designed so a bird could land on the perch and then drop through a narrow slot to the bait inside. This trap was used, but without success, this year.

The canopy was lowered on one side and new wire mesh was put on the walk-in trap near residence #1. This was one of our most successful goose traps this season.

A Colorado duck trap was set up on J-1 Pool again this year. The site needed very little improvement work; however, there were slight modifications made on the trap itself. A new Colorado trap site was established on A-1 Pool near the spillway structure. The bank was sloped and graveled to the water's edge. This site received far more use by geese than by ducks. It would appear as though a cannon trap site should be developed here.

3. Road Improvement

Additional work was done at the Walsh crossing of the Soo Line Railroad tracks so that it would meet the specifications of a public crossing. Advance warning signs and the standard railroad cross-bucks were installed. New planking, also, was put in after being treated with penta-chlorophenol. The crossing was inspected and approved by the Michigan Public Services Commission.

Similar work was accomplished at the Driggs crossing where advance warning signs, cross-bucks and new planking were installed.

The Michigan State Highway Department installed new signs near the entrances to the picnic areas to inform the public of the presence of these facilities. Two Wildlife Refuge Area signs were posted along M-77 to inform the public of wildlife using the area.

Short posts were placed around the perimeter of the Visitor Center parking lot to provide a physical and psychological barrier. This has been effective in keeping traffic a safe distance from the slope.

Approximately 100 yards of fill material have been brought in to widen the entrance to the Visitor Center parking lot and also the road leading into the shop area. A few more loads are needed to complete these projects.

Work was done to improve the Chicago Farm Road. About 3¼ miles were dressed with crushed gravel.

A new road was pushed through the hardwoods around the north side of Chicago Farm. A portion of this 1½ mile road is over an old trail, but most of it entailed clearing and excavating. This road will facilitate detouring of traffic around the farm field and thereby minimize disturbance to wildlife using that area.

4. Construction

A large, double-faced bulletin board was constructed and put in place at the Wigwam picnic area. Pertinent information about the refuge and the recreational program is posted for the benefit of the using public.

Many information and caution signs were constructed throughout the year. Most of these have been placed along roadways and trails to make travel through the refuge safer and more meaningful.

Six information signs were constructed and delivered to the U.S. Customs station at Sault Ste. Marie, Michigan and the Detroit area.

Maintenancemen Anderson and Losey both have had a turn at working in the carpenter shop. Mr. Anderson built a sled to be towed by the Ski-Doo which proved invaluable in island improvement work last winter. Mr. Losey has shown a real skill in constructing small animal live traps. He has done the majority of the work on the 24 traps completed this year. He also assisted in the repair of 135 live traps on loan from the Michigan Department of Conservation in April.

A guard railing was constructed and installed on the bridge at the A-1 spillway.

The Thornton Construction Company of Hancock, Michigan, returned to complete the work on Pine Creek and Driggs River bridges which they contracted last year. The contract called for painting the piers to a depth of 1 foot below the ground line. After struggling fruitlessly with the water they decided to give up and forfeit the $500.00 which had been held back on the job.

Foot bridges were constructed over the spillway at the Upper Show Pool and over the two spillways at the Lower Show Pool by refuge personnel.

5. Landscaping and Erosion Control

The war against erosion was continued as 30 acres of sand blows were covered with a hay mulch in an effort to fix the sand long enough for vegetation to become established. Areas mulched included Walsh siding, along the Walsh and Driggs roads, Diversion Ditch, C-2 and C-3 dikes and a large dune at the southwest corner of Smith Field. This has proven to be an effective and economical method.

Grazing sites were developed for the geese on J-1 dike and along the J to I ditch. Forty loads (200 yards) of top soil were acquired from Russell Zellar at $10.00 per load, delivered. After spreading and tilling, the sites were planted to rye, clover and grasses.

A major landscaping and erosion control project was accomplished at the lower end of Smith Field. The top soil was scraped aside, the terrain leveled and the topsoil drifted back on eight acres of land. This area is now safe for working with the conventional farm tractors. It was worked up and planted to rye, clover and brome grass.

6. Maintenance and Replacement

a. Dikes and Spillways

New metal facings were installed on the radial gates at the Upper Goose Pen outfall. This work was done under contract by Al Boyd Construction of Germfask, Michigan, the successful bidder, for $1,175.00. Stop-logs were made for this spillway by refuge personnel.

The water control structure located in the ditch which feeds Lower Goose Pen from Upper Goose Pen was rebuilt. It was beginning to show its many years of use.

Logs, stumps and other debris were cleared away from the shore at the south end of the Upper Goose Pen.

The rampaging waters of last spring's heavy run-off resulted in damage to the stream bank below A-1 spillway. Partly responsible was the wooden piling that had been driven in February, 1964, as it deflected the water toward the south bank. The piling was cut back to the level of the stream bed and the stream bank was repaired with fill material and rip-rap obtained from the Isadore Gagnon farm. The bank erosion below the I-F spillway was repaired at the same time.

b. Outbuildings

Many projects were completed under this category. In reviewing

them, the many talents of seasonal laborer, Marion J. Schrock, are once again brought to mind. Nearly all of these projects were completed by him or with his help.

Book shelves were built into the northwest corner of the back office. Forester Milligan has found them very useful. In the front office, shelves were built along the entire north wall beneath the windows. They were spaced to accommodate file boxes which will contain journals, articles and similar reference material.

The double doorway into the back office was remodeled and changed to a single doorway. A heavy, solid door was then made for it.

The stairway to the storage area over the front office, also, was remodeled. It now has a landing and makes a turn, resulting in a more gradual pitch and a much safer condition.

Baseboard heating has replaced the old oil burner in the back office. The main heating plant in the Service Building has accommodated this extra load without special modifications. Kenneth Thompson, Heating and Plumbing, did the installation for $475.00.

A large bulletin board, 41" by 71", of cellotex with a wooden frame was constructed and set up in the front office.

Work to beautify the headquarters area included painting the garage doors of the Service Building and the removal of the old gas pumps and the underground storage tanks.

One problem that has not been solved is to find a way to keep the red squirrels out of the storage area over the office.

Insulation and an oil heater were installed in the barn to make it a comfortable early spring laboratory for Dr. Tarshis from Patuxent Wildlife Research Center. Additional bench space was also installed.

In the carpenter shop new fluorescent lights were installed over the DeWalt bench saw and over the bench drill press. Also, some of the old wiring was replaced with new to assure SAFETY in carrying the heavier loads drawn by the power equipment. A dust proof electrical outlet, light switch and light fixture were installed in the granary in the stone building. Some of the old wiring in the automotive shop was replaced by new. At Sub-headquarters the old fuse box in the garage was replaced by a circuit breaker panel and a mercury-vapor light was installed near the road in front of the house.

A cache for storing fire tools was constructed at the east end of the Sub-headquarters garage.

The large refuge sign at the main entrance was restained. Other paint-up projects included painting the observation tower and the garage doors at the automotive shop.

In the Visitor Center, an exhibit case to house the Canada Goose life history exhibit was designed and built for a cost of $400.00. In mid-summer drapes were installed over the windows on the north side to reduce the amount of reflection from the exhibit cases. This has helped, but has not solved the problem. Also, an outside warning light was installed and connected to the heating system. The unit was put in by Hoholik Plumbing and Heating for $75.00. Already the light has been of value by warning that the furnace was malfunctioning.

As a precaution against fire, automatic, thermally released, chemical fire extinguishers were installed over all furnaces.

An anemometer was installed on the top of the observation tower and is wired to a buzzer at the weather station. Readings from it are used in computing the forest fire danger rating.

c. Residences

The living room and the 3 bedrooms in residence #136 were painted in November.

The water pipes in the attic of residence #1 were reinsulated to prevent freezing.

d. Tour Routes

Numbered signs were placed along the self-guided tour route to locate the stations which are described in the guide leaflet.

The conducted tour route was graded and oiled with drain oil to keep down the dust. One application lasted all season.

7. Equipment Received

Below is a listing of the equipment received during this period.

a. Dodge pickup 4x4 from G.S.A.
b. Three Parkersburg prefabricated metal buildings from Shiawassee Refuge.
c. Two-wheeled, tractor-mounted chain saw from Lake Andes Refuge.
d. Three fiberglass assault boats from Spearfish Fish Hatchery.
e. Bucyrus-Erie 22B crane from Fort Leonard Wood.
f. A root rake was purchased for the John Deere 1010 from the John Deere Implement dealer in Manistique.

g. Lowboy trailer (25 ton) from Shiawassee Refuge.
h. A transistorized transmitter-receiver set from the Motorola Company in Minneapolis.

8. Major Repair of Equipment

The steering clutches were overhauled and one link was removed from the tracks of the John Deere 420. A new clutch was put in the 1955 Dodge stake truck. The brake drums were truned down and new brake shoes installed in the Chevrolet 4x4 pickup. The crankshaft was turned down and new bearings were put in the Fairbanks-Morse fire pumper. The hydraulic system on the Austin-Western Grader was overhauled. A radio was installed in the new Dodge 4x4 pickup. SAFETY roll bars were installed on the Allis-Chalmers tractor. A SAFETY screen was installed on the TD-14 to protect the operator. A cab was installed on the Austin-Western Grader. Nine motor vehicles and the lowboy trailer were repainted. With the exception of two of the motor vehicles, all of this equipment has been received as military surplus. Following painting, new Bureau decals were attached.

B. Plantings

1. Aquatic and Marsh Plants

Clumps of sedges and rushes were taken up along the shore of I-1 Pool and transplanted around the new islands in that pool. Heavier plantings were made on the northwest, west and southwest sides.

2. Trees and Shrubs

None this period.

3. Upland Herbaceous Plants

None this period.

4. Cultivated Crops

Four fields were operated under cooperative agreement by Laverne Macaulay for a total of 233 acres. The recently cleared land at Chicago Farm was planted for the first time this year. The strip, measuring approximately 15 acres in size, was planted to oats and seeded to red clover, alfalfa and brome grass. The oats were not harvested due to continuous heavy rains. Approximately 1,000 Canada Geese were in the Chicago Farm fields for 2 weeks, with fewer numbers for another 3 weeks, making use of the oats, as well as the buckwheat.

In addition to the 15 acres of unharvested oats, 40 acres were harvested. The yield averaged 55 bushel per acre which is good for this area.

Fifty-six acres of buckwheat were planted this year. However, the crop was poor being short and thin. Grasses and other weeds soon came in to give competition. The final blow came the last week of August when frost killed the tips of the plants. Nevertheless, the geese gained several days use from the buckwheat.

An additional 168 acres were operated by refuge personnel. Eight acres were leveled and planted to winter rye at the south end of Smith Field. The peatland areas on the north side of the refuge made up the remainder of that acreage.

Field work was delayed until after the Visitor Center dedication. As a result, the 48 acres of oats that were planted turned out very light. Heavy rains began in mid-September and continued throughout the fall preventing the planting of additional winter rye this year. Fifty-five acres of winter rye from last year were allowed to ripen. This was mowed in September and good use was made of it by Sandhill Cranes, Sharp-tailed Grouse and Canada Geese.

Max Macaulay of McMillan, Michigan spread 402 ton of lime from the stockpile obtained from Inland Lime and Stone Company a year ago. One hundred fifty tons were spread on Chicago Farm and 252 tons were spread on the Diversion Unit at a cost of $1.75 per ton for a total of $703.50.

Some of the hay fields were top dressed with fertilizer the first week in September. A total of 11,500 pounds were applied to 53 acres. Of this, 5 tons were 12-12-12 and the remainder was 6-24-24. The applications were made to the Smith Field, the south field at Sub-headquarters and the field between the road and the pond at Chicago Farm.

C. Collections and Receipts

1. Seed and other propaqules

A total of 420 bushels of shelled corn were received from Shiawassee Refuge. This was used to feed the geese until spring break-up and as bait in trapping operations.

2. Specimens

An American Bittern, A Black Squirrel and a Mink were added to our collection of frozen specimens.

D. Control of Vegetation

The struggle against tag alder has continued this period. Brush was cleared from the upper F-1 Pool dike east of the Visitor Center, the nature trail north of residence #136 and the dike between I-1

to F-1 Pools. Additional work was done on the islands in J-1 Pool. However, the major effort was expended in clearing the Lower Goose Pen. Approximately 65 man days were spent in this area. A root rake attachment was acquired for the John Deere 1010 and used to good advantage digging and piling the roots. A total of 17 acres of brush were cleared this year.

E. Planned Burning

None this period.

F. Fires

1. Statistical Fires

The only fire occuring on the refuge this season was in a man-use area. The location was the unauthorized, public dump in Section 9, T44N, R13W, adjacent to Highway M-77.

The danger for the day was spread index 11 (high), buildup index 43, with a 10 mph wind. The perimeter of the fire did not have sufficient time to creep into woody, high intensity fuels, but was controlled while still burning in debris near the point of origin.

Suppression costs were $56.13 for 18 man hours worked with .25 acres burned. Mop up took 50% of total effort because of deep burning rubbish hard to "black-out".

A solution to the closing of this area is still being sought by the refuge and Township supervisor.

2. Protection

A fire protection plan covering the three phases of fire, prevention, detection and suppression, was prepared and approved for Seney Refuge. The plan was finalized so that with minor supplements or changes it can be kept up to date indefinitely.

Planning was dictated by the installation of weather instruments necessary to operate under the new "National Fire Danger Rating System". This system is presently being utilized by most fire responsible organizations.

A "Stewarts" anemometer was mounted on the observation tower with a buzzer system located on the ground. Height-wind correction tables are used. A "Mason" type hygrometer is installed to give wet-dry temperatures necessary for fire weather calculation.

Some fire suppression equipment outlined in the plan has been purchased and will be supplemented gradually as available funds warrant. New items purchased include a variety of hand tools, forester drip torches, rubber back-pack pumps and SAFETY apparel.

A fire "cache" has been constructed at Sub-headquarters with bins, shelving and cupboards for fire equipment storage. It is screened-in and kept locked with items restricted to fire use only. A grind-stone has been added to retain tools in good repair.

Two 10 man fire boxes were put in readiness, one located at head-quarters and one at Sub-headquarters. Both are car sealed to eliminate tool "borrowing".

Two circular plywood fire meters with the fire danger classes painted according to the national rating color code were constructed. Each has an arrow which points to the fire weather for that day. Their intent is to graphically familiarize refuge personnel to weather and fire occurrence correlations and to make the visiting public aware of the danger. One is placed in the front office and the other at the Visitor Center.

A new cooperative fire protection agreement was drawn up with the Michigan Department of Conservation to cover items necessitated by the "National Fire Danger Rating System".

3. Fire Weather

An unusually wet season resulted in low fire danger ratings this year. Fire danger records were maintained from 4/26/65 to 11/20/65 and indicated the following:

Fire Danger	Days	Spread Index
Low	150	0-4
Moderate	28	5-9
High	17	10-19
Very High	5	20-39
Extreme	0	40-100

Thunder and lightening were recorded on 21 days. On these occasions, heavy rains usually preceeded and followed the electrical storms. Many refuge trees were struck by lightening but all were apparently too wet to ignite and smoulder.

Another fire reduction factor is the limited visitor use on forested areas during high danger periods. This eliminates man caused fires but present land use trends may undoubtedly change the picture in future years.

IV. RESOURCE MANAGEMENT

A. Grazing

None this period.

B. Haying

One hundred twenty-two acres of the land operated by the cooperative farmer were in hay. The abundant moisture this year resulted in a good crop. The total harvest was 203 tons with 42 tons being the refuge share. This was stacked at Sub-headquarters to be used later for mulching. The yield ranged from 1 ton per acre to 2.2 tons per acre. The average was 1.6 tons per acre.

There were 57 acres of hay at the Diversion and Walsh Units. Ten acres were harvested at the Walsh Unit and used for mulching. It yielded approximately ½ ton per acre. Twelve acres were harvested at the Diversion Unit and used for mulching. The yield here was approximately 1 ton per acre. John Zellar had baled 400 bales at this unit on a 50 - 50 basis when his baler broke down. Rains prevented any additional bailing. The remaining hay was taken up loose by refuge personnel.

C. Fur Harvest

The refuge was closed to the taking of mammals for fur again this year. Muskrat populations may be slightly higher than previously, but remain much too low to consider harvesting. It was suggested by the Michigan Conservation Department that the refuge be open to beaver trapping this coming spring, but refuge personnel felt strongly against such action. Beaver activity has increased some, but they are not over populated. Mink are observed occasionally, even in daylight, and otter sign is common.

Two trapping permits were issued for the taking of coyote and raccoon. The permittees were Herbert Burton of Germfask, Michigan and Cameron Coe of Manistique, Michigan. They received 100% of their catch. Mr. Burton trapped approximately one week and then removed his traps. He failed to contact the refuge office to report his take or the reason for discontinuing trapping. A total of 24 coyotes, 14 raccoons, 3 bobcats, 1 red fox, 1 small bear (released in good condition), 1 skunk and 6 porcupine were taken by Mr. Coe.

D. Timber Removal

1. Timber Sales

Two jack pine (Pinus banksiana)pulpwood sales were awarded to local jobbers with 6 month contract stipulations beginning July 1, 1965 and ending December 31, 1965. As the refuge is in the beginning stages of timber inventory and land use planning, we were not anxious to establish the area as a stumpage source. However, requests from local jobbers who were pressed to fulfill contract requirements because of local stumpage shortages, made it desirable from a public relations aspect to offer a small amount of pulpwood for sale. Areas harvested can later be applied to the land management plan presently being formulated.

Stumpage inventoried for sale consisted of essentially even-aged, adequately stocked, mature jack-pine with a heavy duff understory void of desirable brouse and upland game food plants. Harvest and logging soil scarification will allow a partial stand conversion to trembling aspen (Populus tremuloides) and the more valuable red pine (Pinus resinosa) crop tree. Canopy striation will also be improved. Black spruce (Picea mariana) enroachment in the lowland fringe areas will enlarge the habitat area for the present, small, Spruce Grouse population. Other species most benefited by the harvest will be White-tailed Deer, Snowshoe Hare and Ruffed Grouse. During the early stages of stand regeneration, brouse will be available through new growth; "budding" areas will become established; and a variety of new desireable woody and herbacious understory species will become evident.

Sale volume information was obtained by using wedge prism and height volume tables with deduction for form class. Cull was not a factor. The cruise was an approximate 25% when using the standard 1/5 acre plot in percent cruise computation.

On the "showing" date, ten interested individuals viewed the stumpage and a drawing indicated sale awardence. Loggers were told that sale of this stumpage was a public service and not in alignment with our overall planning. We received favorable comments on this service.

The two sales, Delta Creek and Marsh Creek, were sold on a lump sum basis for $1.00/rough standard cord. This is 15-30 cents less than the reasonable local stumpage rate providing up bidding does not occur. "Idle time" when stopping, unlocking gates, obeying refuge traffic laws and other refuge caused delays indicated the appraised rate cut.

Delta Creek sale consisted of 52 acres harvested with a yield of 285 cords. The Marsh Creek sale area was 66 acres and yielded 320 cords. The combined sales' income was $605.00. Slash was scattered and a $75.00 performance bond held on each individual until contract compliance was concurred with.

Both sales afforded approximately 637 individual six to eight hour work days of local employment with from 3-12 men working when weather permitted. Average earnings per man were $9.00/day resulting in approximately $5,800.00 of local wages. Other community benefits included various goods and services supplied by merchants as was acknowledged by one individual's letter to the refuge. Piecemakers were paid 11 cents per 100 inch stick under 8" diameter, with double paid for 10" diameters and triple for 12" diameters.

Pulpwood was loaded on railroad flat's at Seney, Michigan and shipped to the Thilmany Mill in Kaukauna, Wisconsin, which paid approximately $18.00/rough cord. Both jobbers estimated approximately $16.00/cord was spent in total woods cost: felling and

bucking, hauling, loading, equipment and other miscellaneous expenditures. This resulted in a profit of $2.00/cord which is average for small jobbers in this area.

2. Road Right-of-Way Clearance

Other timber removal operations consisted of right-of-way clearance for an addition to the refuge road system and salvage of sawlog material for refuge use.

About a mile of new road right-of-way was cleared to by-pass the Chicago Farm Unit. The old road went through the unit with traffic resulting in disturbance to feeding, migrant geese and made a heavily used illegal spotlighting area during deer season. The road also was difficult to keep clear of drifting, winter's snow. Negotiations resulted in a logging permittee doing most of the cutting for the products obtained. A small portion was felled by refuge personnel. Approximately 3 acres yielding 30 cords of low value miscellaneous pulpwood was harvested. The products consisted of 30% aspen, 25% paper birch (Betula papyrifera) and 45% miscellaneous pulpwood.

3. Timber Salvage

On Unit II and III dike systems, refuge personnel salvaged 4,500 board feet of down, dead or dying sawlog material for project use. Ninety-two percent consisted of red pine with the remaining 8% in white pine (Pinus strobus). The logs were hauled to a local merchant for milling.

E. Commercial Fishing

None at this refuge.

F. Other uses

Zack Taylor of Hart, Michigan was granted a Free Use Permit to trap snapping turtles. Government receipts from this activity were $29.00 on the basis of $1.00 per trap used.

The verbal agreement which permitted Alex Creighton to maintain a hunting camp on Duck Creek was terminated upon his death in June. All personal property items were moved from the camp on September 12 by his son Jack Creighton.

A Free Use Permit was granted to Mr. William Linne, Shingleton, Michigan to load forest products at the Driggs (Spur 88) and the Walsh (Spur 91) railroad sidings. He shipped 30 railroad cars of pulpwood from the Walsh siding and 8 cars of pulpwood from the Driggs area. An additional 2 cars of sawlogs and 24 cars of chemical wood were loaded at Driggs siding. Expressed as truck loads, there were 150 truck loads shipped from the Walsh siding and 170 truck loads shipped from the Driggs area.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Waterfowl Disease Study (Leucocytozoon)

Dr. James Barrow of Hiram College, Ohio completed five years of data gathering in September of 1963. To date no publication or completion report has been received from Dr. Barrow.

B. A Critical Evaluation of Some Possible Limiting Factors of the Seney Goose Flock - Seney Project 1

Glen A. Sherwood, Wildlife Management Biologist, conducted a detailed study of the Seney goose flock. Glen, with his families' able assistance, completed the three year project in August, 1965. Progress reports and the completion report are on file at the Washington Office, Minneapolis Regional Office and Seney Refuge.

C. A Study of Family Group Relationships and Breeding Behavior in a Wild Population of Canada Geese - Seney Project 2

This study was conducted by Sherwood simultaneously with the preceeding project. Progress reports were submitted through regular channels covering investigations conducted in 1963 and 1964. A completion report was submitted in August, 1965.

D. Blackfly Study

Dr. Carlton M. Herman of the Patuxent Wildlife Research Center has been supervising this study. He made a trip to Seney in July and obtained blood samples of several Canada Geese during the summer molt drive-trapping program. This study is of the blood disease Leucocytozoon, but deals with the vector of the disease. Dr. I. Barry Tarshis of Patuxent was the investigator in 1965 and was assisted by Basil Martin. Through Dr. Tarshis, Patuxent is trying first to determine which fly is the vector, and secondly how to control it. Dr. Tarshis made several trips to Seney to take blood samples and to collect blackfly eggs for hatching under laboratory conditions at Patuxent.

This is the third consecutive year of Patuxent's study on the blackfly.

E. Land Use Planning

Seney Refuge is presently being inventoried and data obtained to determine wildlife habitat improvements, land development potential and possible new land uses. Surface area has been sub-divided into 17 compartments which average 5,000 acres each. Compartment boundaries were chosen which exhibited pronounced topographic referrence points. During calendar year 1965, 18,046 acres were inventoried. A land use plan will be prepared when the inventory is complete.

Land uses reflecting development potential, other than typical forest-wildlife management practices, are as follows:

1. Forest recreation.
2. Sharptail Grouse habitat.
3. Beaver pond-puddle duck correlation.
4. Farming units.
5. Deer "yards" and forage.
6. Natural areas.

The following four tables contain a general breakdown of cover types and acreages found at Seney. Approximately 30% of the forested area is understocked and producing poor quality forage and cover species. Note the large acreages of low carrying capacity understory. Cover type openings are excessive to upland game requirements and their present composition generally produces a poor "edge effect".

Table 11. Compartment #2, 4,566 Acres.

Non Forest

Open Water	171 acres
Cultivated Field	60 "
Railroad & Highway	45 "
System & Log Roads	13 "
	1,075 acres

Overstory (Forest Cover Types)		Understory (Forest Types)	
Spruce - Fir	839 acres	Spruce - Fir	275 acres
Jack Pine	600 "	Red-White Pine	148 "
Aspen & Paper Birch	419 "	Jack Pine	41 "
Off Site Aspen	230 "		
Beech,Birch,Maple	40 "		
Tamarack	9 "		
	2,341 acres		1,464 acres

Other Cover Types		Other Types	
Brush	909 acres	Duff	803 acres
Marsh	671 "	Lowland Grass	443 "
Lowland Grass	182 "	Brush	426 "
Duff	105 "	Upland Grass	143 "
Upland Grass	59 "	Marsh	62 "
	1,150 acres		1,877 acres

Total Acres	4,566	2,341

Table 12. Compartment #15, 4,765 Acres.

Non Forest

Open Water	641	acres
Natural Area Marsh	186	"
Natural Area Islands	38	"
Cultivated Field	96	"
Dikes & Roads	62	"
	1,542	acres

Overstory (Forest Cover Types)			Understory (Forest Types)		
Jack Pine	914	acres	Spruce - Fir	573	acres
Spruce - Fir	862	"	Beech,Birch,Maple	230	"
Aspen - Paper Birch	723	"	No. White Cedar	178	"
Beech, Birch, Maple	142	"	Red - White Pine	138	"
Red - White Pine	65	"	Bottomland H.Wood	61	"
Hemlock	47	"	Jack Pine	28	"
Bottomland Hardwood	13	"	Aspen-Paper Birch	19	"
No. White Cedar	9	"			
Tamarack	3	"			
	2,778	acres		1,227	acres

Other Cover Types			Other Types		
Marsh	414	acres	Duff	1,062	acres
Grass	400	"	Grass	374	"
Brush	100	"	Brush	115	"
Duff	45	"			
Muskeg	5	"			
	445	acres		1,551	acres
Total Acres	4,765			2,778	

Table 13. Compartment #16, 2,307 Acres.

Non Forest

Natural Area (is forested)	233	acres
Cultivated Field	170	"
Open Water	114	"
Roads & Dikes	24	"
	751	acres

Overstory (Forest Cover Types)			Understory (Forest Type)		
Aspen - Paper Birch	423	acres	Beech,Birch,Maple	270	acres
Jack Pine	392	"	Spruce - Fir	140	"
Spruce - Fir	267	"	Hemlock	60	"
Hemlock	228	"	Red - White Pine	19	"
No. White Cedar	95	"			
Beech, Birch, Maple	65	"			
Red - White Pine	15	"			
	1,485	acres		489	acres

Other Cover Types			Other Types		
Muskeg	109	acres	Duff	784	acres
Marsh	99	"	Brush	131	"
Grass	71	"	Grass	69	"
Brush	2	"	Muskeg	12	"
	71	acres		996	acres
Total Acres	2,307			1,485	

Table 14. Compartment #17, 6,408 Acres.

Non Forest

"String Bog" Marsh	3,570	acres
"String Bog" Island	432	"
Open Water	555	"
Roads & Dikes	22	"
	5,087	acres

Overstory (Forest Cover Type)			Understory (Forest Type)		
Jack Pine	987	acres	Red - White Pine	276	acres
Red - White Pine	238	"	Jack Pine	50	"
Spruce - Fir	35	"	Spruce - Fir	6	
	1,260	acres		332	acres

Other Cover Type			Other Types		
Marsh	403	acres	Duff	687	acres
Brush	105	"	Grass	150	"
Grass	61	"	Brush	60	"
			Marsh	31	"
	61	acres		928	acres
Total Acres	6,408			1,260	

F. Student Assistant Projects

Lee Mowbray, Wildlife Aid, conducted the annual check of Wood Duck nesting boxes. Mowbray's report, which includes results of nesting and recommendations for future nesting boxes, is on file at the Minneapolis Regional Office and Seney Refuge.

Frank Baucom, Wildlife Aid, made a study of Woodcock habitat and habits (see Seney Refuge files).

VI. PUBLIC RELATIONS

A. Recreational Uses

1. Visitor Center Dedication

The outstanding event of the year took place on May 30 when the new Visitor Center was formally dedicated to the furtherance of public knowledge, appreciation and enjoyment of this great nations natural resources. The day began with a gentle rain which seemed to increase as the morning wore on. It seemed that the carefully made plans to have the ceremony outside were thwarted. The

seriousness of this lay in the fact that the small auditorium would not accommodate the many guests that were soon to arrive.

By 1 o'clock the rain had stopped and when the early guests arrived at 2:00 P.M. the lot in front of the Visitor Center was nearly prepared for an outside ceremony. As the invocation was given at 2:30 P.M. it was as though the curtain was being raised on a carefully prepared stage. A breeze of fresh clean air carried the call of Canada "Honkers" to the 600 guests that had come to attend the dedication. As the sun peeked from behind a cloud a group of these magnificent birds flew in to rest on the water just off shore from the crowd. A little farther out, parents with their broods of goslings were moving about. All of this was in a setting of water and marsh with a backdrop of northern pine and hardwood.

The natural beauty of Seney Refuge makes a lasting impression on many thousands of visitors each year. It is certain with the new Visitor Center and facilities it provides that folks will go away with a greater understanding and deeper appreciation of the resources and environment surrounding them.

It was with this thought in mind that the decision was made to build a Visitor Center when the first Accelerated Public Works Program monies were made available in 1962. It was toward this purpose that we gathered this Memorial Day to officially open the doors to the public.

These and other thoughts were conveyed to the guests as Regional Director, Robert W. Burwell, Master of Ceremonies gave a brief background of the establishment and development of Seney National Wildlife Refuge. Dr. Ralph A. MacMullan, Director of the Michigan Department of Conservation, emphasised the value of cooperation between State and Federal agencies and expressed appreciation for that which exists in Michigan. Director of Bureau of Sport Fisheries and Wildlife, John S. Gottschalk, very effectively portrayed the scope and need of conservation on a broad scale that resources and natural beauty will be available for future generations to enjoy. Clarence F. Pautzke, Commissioner of Fish and Wildlife, gave the principle address. He described the concept of expanding utilization of refuge areas, emphasising the aesthetic values which may be gained by the public without interfering with the primary aims of conservation.

Commissioner Pautzke and Refuge Manager Hakala joined in cutting the ribbon which opened the new Visitor Center to public use and enjoyment.

The guests filed into the building to view the exhibits, inspect the facilities and partake of refreshments provided by the Germfask-Seney Lions Club. Our sincere thanks and deep appreciation go to

the Lions Club, not only for doing a wonderful job with the refreshments, but also for efficiently handling the traffic.

Below is a listing of the dedication ceremony as it was conducted.

Invocation

The Rev. Allen Parks
Grace Lutheran Church
Germfask, Michigan

Remarks

Robert W. Burwell, Regional Director
Bureau of Sport Fisheries and Wildlife
Minneapolis, Minnesota

Dr. Ralph A. MacMullan, Director
Michigan Department of Conservation
Lansing, Michigan

John S. Gottschalk, Director
Bureau of Sport Fisheries and Wildlife
Washington, D.C.

Address

Clarence F. Pautzke, Commissioner
U.S. Fish and Wildlife Service
Washington, D.C.

Ribbon Cutting

Clarence F. Pautzke and John B. Hakala

Benediction

The Rev. Fr. Neal Smith
St. Therese Church
Germfask, Michigan

Sunset that evening brought to a close a very worthwhile experience for all who participated. Activities actually began on Saturday evening when acquaintances were made and old ones were renewed around grilled steaks. On Sunday morning personnel from both the Regional Office and the Central Office toured the area and discussed refuge development and operations.

As the last cars departed thoughts flashed back over the many weeks of planning and preparation. Following the completion of the $100,000 building by the Kaysner Construction Company of Sault Ste.

Marie, Michigan (the successful bidder) in December, 1963, thoughts turned toward developing the exhibits. Help came from many sources as local residents donated pictures and refuge personnel supplied additional photographs and information. The basic exhibit story was planned by Conservation Education Officer, Chuck Griffiths, Recreational Specialist, Ed Trecker and Assistant Refuge Manager, Joe Halladay. The majority of the displays were done under contract by the Rutherford Display Company in Minneapolis. A diorama exhibit, utilizing mounted specimens and natural vegetation, presents the life history story of Canada Geese. This exhibit was designed and constructed by refuge personnel. The taxidermy work was done by Dr. Robert S. Butsch of the University of Michigan Museum of Natural History. It is obvious after a full season of use that this is the type of exhibit that the public prefers. It never failed to arouse interest and to stimulate remarks.

Plans for the dedication ceremony were worked up and carried out by Chuck Griffiths and the refuge staff. Five hundred engraved invitations and 375 personal letters were sent to local, state and Federal officials. The invitation was extended to the general public through the mass news media. We are greatful to the City of Manistique for making a public address system available to us. An ambulence was hired from Newberry as an emergency precaution and Michigan State Police and Schoolcraft County Sheriff's Department were on hand to assist.

2. Visitor Use

The American public remains on the move with a good number finding their way to this scenic northland. It was a pleasure to have the Visitor Center open where visitors could obtain information, register for the self-guided auto tour or just rest awhile. Although minor changes are yet to be made, the recreational program progressed smoothly and effectively. There are no serious problems to report. Littering was insignificant and only one incident of vandalism occurred. The railing on one of the footbridges at the Show Pools was damaged.

Increased use was made of the tours this year. The self-guided route was enjoyed by 4,283 passengers traveling in 1,083 cars. This was an increase of 1,528 visitors and 462 cars over the 1964 season. A new and enlarged trail guide leaflet was developed for this tour. Twenty-two numbered signs were installed along the route to locate the points of interest explained in the guide leaflet. The average length of time spent on this 7 mile trip increased from 1 hour in 1964 to 1½ hours this year.

The conducted tour given at 6:00 P.M. daily did not show as dramatic an increase as did the self-guided tour. Nevertheless, 784 cars carried 3,423 persons over this 10 mile route. This was an increase of 101 cars and 382 people over 1964.

Total figures for visits is lower this year. We do not feel that visitor use was any less, only that we have more accurate figures. Four new traffic counters were acquired and installed to collect data that could only be estimated previously.

A new uniform system of recording visitor use was initiated by the Bureau of Outdoor Recreation. Under this system a 12 hour day constitutes 1 visitor use day. Under our previous recording system 1 visitor coming onto the area constituted a use day regardless of the time spent. Below is listed a breakdown of visitor use under both classification systems.

Visitor use days by the previously used system:

Hunting	Fishing	Sightseeing	Economic	Total
4,380	5,832	51,577	5,039	66,828

Visitor use days by the new system:

Hunting	Fishing	Sightseeing	Economic	Total
3,285	1,458	8,954	2,461	16,158

Approximately 1,000 copies of the refuge leaflet were distributed to local Chamber of Commerce offices. Many folks have learned about the refuge through this publicity.

Fishing use was moderate as fishing success was only fair. Several fish were taken the first two weeks the pools were opened, but only occassional catches were made after that.

B. Refuge Visitors

Pages 41 through 45 include a listing of the refuge visitors for this year.

Date	Name and Title	Address	Representing
1-5-65	E.J. Lavender, Superintendent	Newberry, Michigan	Luce County Road Commission
1-5-65	Bernard Garvel	Newberry, Michigan	Newberry Automotive Inc.
1-12-65	Jim Crays	Lansing, Michigan	U.S. Geological Survey
1-12-65	Larry Hough	Manistique, Michigan	U.S. Geological Survey
1-12-65	Thomas G. Newport	Escanaba, Michigan	U.S. Geological Survey
1-12-65	Gerald Falls, UDS Officer	Detroit, Michigan	GSA Motor Pool, Detroit
1-13-65	Frank Martin, Ass't Regional Supvr.	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
1-13-65	John Winship, Pilot-Biologist	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
1-19-65	Mac.Frimodig, Naturalist	Marquette, Michigan	Michigan Conservation Department
1-19-65	Bruce Andrews, Conservation Officer	Munising, Michigan	Michigan Conservation Department
1-28-65	Gerald P. Cooper	Ann Arbor, Michigan	University Museums, MCD
1-28-65	David H. Jenkins, Research Div.	Lansing, Michigan	Michigan Conservation Department
1-28-65	Ralph Blouch, Research Div.	Lansing, Michigan	Michigan Conservation Department
2-11-65	J.A. Simi, Manager	Marquette, Michigan	Soo Line Railroad
2-11-65	W.E. Perron, Engineer	Marquette, Michigan	Soo Line Railroad
2-16-65	Mac Frimodig, Naturalist	Marquette, Michigan	Michigan Conservation Department
2-17-65	Dean Rhoads, County Extension Agent	Manistique, Michigan	Schoolcraft County
3-10-65	Byron Boogren, District Law Supvr.	Newberry, Michigan	Michigan Conservation Department
3-23-65	Vic Janson, Game Division	Lansing, Michigan	Michigan Conservation Department
3-23-65	Charles McGriff, P&RC	Columbus, Ohio	U.S. Fish and Wildlife Service
3-24-65	Elridge Harger, Biologist (Cusino)	Shingleton, Michigan	Michigan Conservation Department
3-26-65	Floyd Roberts, District Ranger	Munising, Michigan	U.S. Forest Service
3-26-65	Butch Marita, Ass't District Ranger	Munising, Michigan	U.S. Forest Service
3-31-65	Robert Ankney, Game Manager	E. Lansing, Michigan	Michigan Conservation Department
3-31-65	Lee Schrader, Game Division	E. Lansing, Michigan	Michigan Conservation Department
3-31-65	Dr. Gene A. Hesterberg	Houghton, Michigan	Michigan Technological University
3-31-65	William Aultfather, Reg. Forester	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
4-6-65	Harold Y. Stockholm, Engineer	Escanaba, Michigan	U.S. Forest Service
4-6-65	Raino M. Maki, Surveying Tech.	Escanaba, Michigan	U.S. Forest Service
4-6-65	Justin Swee, Engineer	Escanaba, Michigan	U.S. Forest Service
4-20-65	Mrs. Ester Schaubel, Retired	Detroit, Michigan	U.S. Public Health Service
4-21-65	Dr. John Emlen, Zoology Dept.	Madison, Wisconsin	University of Wisconsin
4-22-65	Doug Pamlott, Zoology Dept.	Toronto, Ontario	University of Toronto
4-22-65	Rod Hammel, Dept. of Lands & Forests	Toronto, Ontario	University of Toronto
4-22-65	Bill Charlton, Dept. Lands & Forests	Toronto, Ontario	University of Toronto

Date	Name and Title	Address	Representing
4-22-65	Bill Chanilers, Dept. Lands & Forests	Siona Lookout, Ontario	University of Toronto
4-22-65	Dave Brooks, Dept. of Lands & Forests	Lake Erie, Ontario	University of Toronto
4-22-65	James Keddie, Dept. Lands and Forests	Chaplean, Ontario	University of Toronto
4-22-65	Sergej Postupalsky	Royal Oak, Michigan	Bald Eagle Survey
4-22-65	John Winship, Pilot-Biologist	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
4-27-65	Lloyd Gray, Sheriff	Manistique, Michigan	Schoolcraft County
5-4-65	Dr. Fant Martin	Laurel, Maryland	U.S. Fish and Wildlife Service
5-12-65	Clayton Wray, Instructor	Sault Ste. Marie, Mich.	Soo Branch, Mich. Tech. Univ.
5-12-65	Gil Gleason, Instructor	Sault Ste. Marie, Mich.	Soo Branch, Mich. Tech. Univ.
5-30-65	Dr. C.T. Black, Rose Lake Exp. Station	E. Lansing, Michigan	Michigan Conservation Department
5-30-65	H.B. Guillaume, State Parks	Lansing, Michigan	Michigan Conservation Department
5-30-65	A.B. Cook, Retired Chief Fish Div.	Owosso, Michigan	Michigan Conservation Department
5-30-65	Clarence F. Pautzke, Commissioner	Washington, D.C.	U.S. Fish and Wildlife Service
5-30-65	John Gottschalk, Director	Washington, D.C.	U.S. Fish and Wildlife Service
5-30-65	Fran Gillette, Chief of Refuges	Washington, D.C.	U.S. Fish and Wildlife Service
5-30-65	Kenneth W. Morrison, Reg. Supvr. Fish	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
5-30-65	Robert Burwell, Regional Director	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
5-30-65	Forrest Carpenter, Supvr. Refuges	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
5-30-65	Chuck Griffith, C & E Officer	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
5-30-65	Ed Trecker, Recreation Specialist	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
5-30-65	Dr. Ralph A. MacMullan, Director	Lansing, Michigan	Michigan Conservation Department
5-30-65	Rev. Allen Parks	Germfask, Michigan	Grace Luthern Church
5-30-65	Father Neal Smith,	Germfask, Michigan	St. Therese Church
6-1-65	Dick Toltzmanni	Wapello, Iowa	Mark Twain Refuge
6-2-65	Margaret Wiss	Columbus, Ohio	Coast and Geodetic Survey
6-3-65	William H. Goudy	Laurel, Maryland	U.S. Fish and Wildlife Service
6-5-65	Donald J. Hankla, Refuges (Region 4)	Altanta, Georgia	U.S. Fish and Wildlife Service
6-5-65	Milt Reeves, Management & Enforcement	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
6-7-65	James A. German	Fountain Grove, Mo.	Missouri Conservation Commission
6-7-65	Kenneth Whit	Salisting, Missouri	Missouri Conservation Commission
6-7-65	Øharles Huthne	Brookfield, Missouri	Missouri Conservation Commission
6-7-65	Dunbar Robb, Ass't Chief Game Div.	Jefferson City, Mo.	Missouri Conservation Commission
6-7-65	A.C. Hoefelman	Jefferson City, Mo.	Missouri Conservation Commission
6-7-65	Robert L. Dunkeson	Jefferson City, Mo.	Missouri Conservation Commission
6-7-65	Richard W. Vaught	Columbia, Missouri	Missouri Conservation Commission

Date	Name and Title	Address	Representing
6-7-65	Dr. W.B. Green	Winona, Minnesota	U.S. Fish and Wildlife Service
6-7-65	Robert H. Timmerman, Refuge Manager	Sumner Missouri	Swan Lake National Wildlife Refuge
6-7-65	George Arthur	Springfield, Illinois	Illinois Conservation Department
6-7-65	Dr. Edward G.Voss	Ann Arbor, Michigan	U. of Michigan Herbarium
6-7-65	Chester W. Laskowski	Ann Arbor, Michigan	University of Michigan
6-7-65	Samuel J. Mazzer	Belleville, Michigan	University of Michigan
6-14-65	Dick Fihn	Fergus Falls, Minn.	U.S. Fish and Wildlife Service
6-16-65	William Taylor	Escanaba, Michigan	U.S. Forest Service
7-1-65	Pat Karns	Ely, Minnesota	Minn. Div. of Game and Fish
7-8-65	Dr. Harold Hanson		Illinois Natural History Survey
7-8-65	Dr. Carlton Herman	Laurel, Maryland	U.S. Fish and Wildlife Service
7-9-65	Kenneth Badell	Jamestown, N.D.	U.S. Fish and Wildlife Service
7-16-65	Lee Smits	Detroit, Michigan	Michigan Consolidated Gas Co.
7-20-65	William H. Goudy	Laurel, Maryland	U.S. Fish and Wildlife Service
7-22-65	Earl J. Gordinier, Rose Lake Research Sta.	E. Lansing, Michigan	Michigan Conservation Department
7-22-65	Leonard M. Springer, Supervisor	Minneapolis, Minnesota	Branch of Federal Aid
7-23-65	Bob Morin, Engineer	Hancock, Michigan	Thornton Construction Co.
7-26-65	Les Line, Outdoor Editor	Midland, Michigan	Midland Daily News
8-2-65	Fran Uhler, Patuxent	Laurel, Maryland	U.S. Fish and Wildlife Service
8-5-65	R.E. Johnson	Arlington, Virginia	U.S. Fish and Wildlife Service
8-12-65	Thomas E. Jordan, Jr.	St. Paul, Minnesota	U.S. Forest Service
8-23-65	Roy Le Zotte	Kalamazoo, Michigan	U.S. Civil Service Commission
8-24-65	Quintin Peterson	Kingsford, Michigan	U.S. Soil Conservation Service
8-24-65	David Ottoson	Newberry, Michigan	U.S. Soil Conservation Service
8-30-65	Richard R. Beech	Marquette, Michigan	U.S. Forest Service
8-30-65	Floyd K. Stuart	Newberry, Michigan	U.S. Coast and Geodetic Survey
8-30-65	William F. Wild	Detroit, Michigan	U.S. Coast and Geodetic Survey
9-2-65	V.F. Hendricks	Chicago, Illinois	U.S. Weather Bureau
9-8-65	B.E. Boogren, District Supvr.	Newberry, Michigan	Michigan Conservation Department
9-8-65	Harold Beaton, U.S. Attorney	Grand Rapids, Michigan	U.S. Department of Justice
9-8-65	William McClure, GMA, District Supvr.	Lansing, Michigan	U.S. Fish and Wildlife Service
9-8-65	Robert Meyerding, GMA	Bay City, Michigan	U.S. Fish and Wildlife Service
9-8-65	Richard Smith,Wildlife Services Div.	Columbus, Ohio	U.S. Fish and Wildlife Service
9-8-65	John Anguilm, Chief of Law	Lansing, Michigan	Michigan Conservation Department
9-8-65	Jack Frye, Refuge Manager	Saginaw, Michigan	Shiawassee National Wildlife Refuge

Date	Name and Title	Address	Representing
9-8-65	Ed Anderson, Ass't Refuge Mgr.	Saginaw, Michigan	Shiawassee Nat'l Wildlife Refuge
9-8-65	Louis Robinson, Mechanic	Saginaw, Michigan	Shiawassee Nat'l Wildlife Refuge
9-9-65	C.E. Johnson, Manager	Houghton, Michigan	Isle Royal National Park
9-10-65	Robert Morin, Engineer	Hancock, Michigan	Thornton Construction Company
9-14-65	Gerald Falls, UDS Officer	Detroit, Michigan	G.S.A. Motor Pool, Detroit
9-15-65	Larry Gregg	Williamston, Michigan	Michigan State University
9-22-65	Louie J. Mackenzie, Field Associate	New York, New York	Peabody Museum, Yale University
9-27-65	Robert Britt	Woodbridge, Virginia	U.S. Fish and Wildlife Service
9-29-65	Gerald McClure, GMA	Lansing, Michigan	U.S. Fish and Wildlife Service
9-30-65	Floyd Roberts, Forest Ranger	Munising, Michigan	U.S. Forest Service
10-7-65	Ralph Von Dane, GMA-Pilot	Peoria, Illinois	U.S. Fish and Wildlife Service
10-14-65	Charles R. Burrows	St. Paul, Minnesota	Minnesota Conservation Department
10-14-65	Hjahmar Swenson	St. Paul, Minnesota	Minnesota Conservation Department
10-14-65	Kenneth W. Morrison	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
10-15-65	Dr. A.G. Schroeder	Chicago, Illinois	Checking Maximus Geese
10-15-65	Arthur W. Devermann	Chicago, Illinois	Checking Maximus Geese
10-15-65	Matt Woolfe	McHenry, Illinois	Checking Maximus Geese
10-15-65	James H. Bell, Supervisor	Shingleton, Michigan	Michigan Department of Conservation
10-15-65	Jon R. Howell, W.U.C.	Manistique, Michigan	Soil Conservation Service
10-27-65	William Taylor, Biologist	Escanaba, Michigan	U.S. Forest Service
10-28-65	Carl Stottenbus	Ames, Iowa	Iowa State University, Forestry Dept.
10-28-65	Roger Fight	Ames, Iowa	Iowa State University, Forestry Dept.
10-28-65	Kenneth D. Ware	Ames, Iowa	Iowa State University, Forestry Dept.
10-28-65	Dick Bower	Ames, Iowa	Iowa State University, Forestry Dept.
10-28-65	David W. Countryman	Ames, Iowa	Iowa State University, Forestry Dept.
10-28-65	E.J. Sundstrom, Editor	Sault Ste. Marie, Mich.	Soo Evening News
11-30-65	George G. Bekeris, Ass't Supervisor	Minneapolis, Minnesota	U.S. Fish and Wildlife Service
12-20-65	Larry Hough	Escanaba, Michigan	U.S. Geological Survey
12-20-65	Charles J. Doonan	Escanaba, Michigan	U.S. Geological Survey

FREQUENT VISITORS TO REFUGE DURING 1965

Name and Title	Address	Representing
Lloyd Lindvall, GMA	Manistique, Michigan	U.S. Fish and Wildlife Service
Leslie Walstrom, Conservation Officer	Germfask, Michigan	Michigan Conservation Department
Loyd Schemenauer, Game Biologist	Newberry, Michigan	Michigan Conservation Department
Walt Niemi, Fire Officer	Seney, Michigan	Michigan Conservation Department
John Mattson, Fire Officer	Grand Marais, Michigan	Michigan Conservation Department
Bruce Andrews, Conservation Officer	Munising, Michigan	Michigan Conservation Department
Leland Anderson, Fishery Biologist	Newberry, Michigan	Michigan Conservation Department
Dr. I. Barry Tarshis, Parasitologist	Laurel, Maryland	U.S. Fish and Wildlife Service
Robert Compeau, Fire Supervisor	Newberry, Michigan	Michigan Conservation Department
Rex Beadle, Radio Engineer	Newberry, Michigan	Michigan Conservation Department
Dean Rhoads, County Extension Agent	Manistique, Michigan	Schoolcraft County and MSU
Herbert Burton, Trapper	Germfask, Michigan	Trapping Predators
Cameron Coe, Trapper	Manistique, Michigan	Trapping Predators
Zack Taylor, Trapper	Holt, Michigan	Trapping Snapping Turtles
Elridge Harger, Biologist	Shingleton, Michigan	Cusino Wildlife Experiment Station
Lou Verm, Biologist	Shingleton, Michigan	Cusino Wildlife Experiment Station
Clyde Lambert, Conservation Officer	Manistique, Michigan	Michigan Conservation Department
John Arduin, Trapper	Naubinway, Michigan	Michigan Conservation Department
Harvey Saunders, Retired	Germfask, Michigan	U.S. Fish and Wildlife Service

C. Refuge Participation

Following is a list of public contacts, conferences, etc.

Date	Group Title	No. in Party	Personnel Involved
01-20-65	White Pine-Ontanogan Rotary Club	40	Hakala
02-04-06-65	Seminar on Canada Goose Ecology at Kellogg Bird Sanctuary	20	Sherwood, Halladay & Hakala
02-15-65	University of Michigan, Seminar presenting Bureau	30	Hakala & Frye
02-16-65	Michigan State University, Seminar presenting Bureau	100	Hakala & Frye
02-23-26-65	Law Enforcement School at Crab Orchard Refuge	30	Hakala, Losey & Orlich
03-05-65	Cooperative Extension Service - Projects for Economic Opportunity Act	12	Halladay
03-08-19-65	Law Enforcement School, Denver	40	Hakala
03-16-65	Germfask P.T.A.	21	Halladay
04-22-65	University of Tronto, Zoology Department	6	Hakala
05-12-65	Michigan Technological University - (Sault Branch)	121	Halladay
05-13-65	Thompson Community Club	30	Hakala
05-17-65	Rock High School	25	Halladay
05-19-65	Hiawatha Township School	95	Halladay
05-31-65	Michigan Botanical Club	60	Halladay
06-01-65	McMillan School (8th Grade)	21	Halladay
06-02-65	Germfask Elementary School	150	Halladay

Date	Group Title	No. in Party	Personnel Involved
06-07-65	Seminar on Biological Problems - Regional Office Personnel, Dr. Bill Green and Missouri Department of Conservation Personnel	11	Hakala, Sherwood, Halladay & Milligan
06-08-65	Munising Rotary Club	26	Halladay
06-25-65	Camp Shaw 4-H'ers - from Michigan State University	150	Halladay, Milligan, Doran & Mowbray
06-29-65	Boys Scouts of Spring Lakes, Michigan	31	Doran
07-07-65	Michigan State University Forestry Department Field Trip	25	Hakala & Halladay
07-07-65	Conservation Class, Newberry State Hospital	7	Halladay
07-13-65	Michigan State Legislatures and families	70	Halladay
08-08-14-65	Job Corps Orientation at Manassass Air Force Base, Washington, D.C.	100	Hakala
09-08-65	Seminar on Enforcement - Seney Refuge	25	Staff
09-18-65	Newberry State Hospital Group	25	Halladay
10-07-65	Soil Conservation Service and U.S. Forest Service Personnel	7	Halladay
10-28-65	Iowa State University Forestry Department	5	Hakala & Milligan
10-30-65	Michigan Technological University Foresters	50	Hakala & Milligan
12-05-08-65	27th Annual Midwest Wildlife Conference	300	Hakala

Cooperation with Management & Enforcement

On September 30, G.M.A. William G. McClure, District Supervisor, Lansing, Michigan, conducted an enforcement meeting regarding the waterfowl hunting season regulations. Goose hunting opened October 1 and Duck hunting opened October 11. Refuge personnel participated in enforcement patrol with Mr. McClure and G.M.A. Lloyd C. Lindvall, Manistique, Michigan.

Cooperation with Michigan Department of Conservation

Refuge personnel patrolled the refuge and state highways adjacent to the refuge during the annual rifle deer season, November 13-28. All big game violations were turned over to the local Michigan Department of Conservation Officer, Leslie Walstrom, Germfask, Michigan.

Mgr. Hakala patrolled several evenings with Mr. Walstrom during and after the deer season. Poaching in this area appears to be a "way of life" with many citizens, especially after the close of the big game season. The violators kept enforcement personnel "jumping" throughout December.

D. Hunting

October 1 marked the first day of upland game hunting in Upper Michigan. Considerable pressure was brought against the Sharp-tailed Grouse in those areas along state highway M-28 west of Seney and north of the refuge. Success was fair to good on that opening weekend, but both pressure and success slacked off after that. Ruffed Grouse and Woodcock hunting was about average. Most hunters who were willing to work a little and could shoot "straight" were rewarded for their time. Snowshoe Hare numbers are up slightly and have offered some good sport this winter.

Waterfowl shooting was traumatically different in this area this year. Duck shooting was about the same with only light pressure and an equally light kill. The shock, however, came as we witnessed serious numbers of Seney's resident geese taken at nearby farms. In previous years approximately 25 to 30 resident geese would be taken locally. This year we estimate that 200 met death before the southern flight. This is 20% of the estimated 1,000 birds which made up the total flock prior to the hunting season. Several factors probably are responsible for this increased kill. First of all, a high number of the birds were going out to nearby farm fields. Secondly, they were going into several areas and thereby were well dispersed. Then on the opening weekend, hunting pressure was heavy in all of these areas and, consequently, the kill was heavy. The geese showed a very strong attraction to a couple of areas, being reluctant to leave even after being shot at. It is possible that baiting had occurred prior to the season, but it must also be recognized that these geese are conditioned to the presence of humans as they are viewed and photographed by thousands of refuge visitors throughout the summer.

The take of migrant geese was very light in the Seney area. The peak build up of geese was only 4,500 and the migrants ventured out of the refuge very little. Overall estimated goose kill was 275.

Approximately 90% of the refuge was open to rifle deer hunting again this year. Even though the season in the Upper Peninsula opened a week earlier than in Lower Michigan, fewer hunters chose the refuge the first 2 days. Some hunters stopped on their way back to Lower Michigan resulting in an estimated 1,750 hunters making use of the area. Hunting conditions were good with snow falling by the evening of the first day. The snow remained throughout most of the season. Kill was heavier this year with 210 being the estimated total bag. Of this there were 69 bucks, 41 does and 30 of unknown sex. One bear was known to have been taken on the refuge.

E. Violations

We experienced the usual number of minor violations again this year. Nevertheless, we are pleased as we realize conditions could be much worse considering the number of visitors that come to our area. The only vandalism that occurred was minor damage to the footbridge at the Upper Show Pool. All other violations involved hunters or hunting.

Only one conviction is to be reported to date. On November 13, Marvin Theck was apprehended while transporting a deer with an unlocked seal in his vehicle. The case was turned over to Michigan State Conservation Officer Leslie Walstrom. The defendant was fined $10.00 and $7.30 costs.

As refuge personnel patrolled the south entrance road on November 13, two hunters were observed hunting in the refuse disposal area. When questioned they stated that local residents had directed them to this area. There was little cause for ignorance as the area was plainly marked closed. The case was turned over to G.M.A. Lindvall.

On November 13, Duane Sherwood was apprehended while carrying a .22 revolver on the refuge. The case was turned over to G.M.A. Lindvall.

Also, on November 13, three hunting parties were apprehended for trespass as they had lifted the boundary wire and driven their vehicles into the refuge over a trail closed to motor vehicles. These cases were turned over to G.M.A. Lindvall.

On November 15, a hunter was observed across from the refuge entrance with a Spruce Grouse in his possession. Michigan State Conservation Officer Leslie Walstrom was notified. The hunter was apprehended and convicted.

While on patrol on November 16, two local hunters were apprehended for running motorized snow sleds on the refuge. The case was turned over to G.M.A. Lindvall.

F. SAFETY

SAFETY meetings were held each month. A listing of the discussion leaders and topics are as follows:

Month	Topic	Discussion Leader
January	General review of Station and Regional SAFETY for calendar year 1964.	Hakala
February	SAFETY in use of cannons while trapping geese. Fires in the home.	Sherwood Orlich
March	SAFETY in the home.	Halladay
April	Personal Protection Film "One to a Customer".	Hakala
May	Filling out accident forms and obtaining information at scene of accident. Film "Lifting - Man's Age Old Problem".	Doran
June	Drive trapping SAFETY Film "Fireman at Your Door".	Sherwood
July	Storage areas. Film "A Fisherman's Notebook".	Halladay
August	Power tool SAFETY. Film "To See Ourselves".	Schrock
September	Chain saw SAFETY.	Zellar
October	Fall and winter driving SAFETY.	Doran
November	Transporting explosives.	Anderson
December	Use of axes and chain saws in brush clearing.	Milligan

At the close of the year the station SAFETY record was 242 days without a lost-time accident. The previous record of 280 days was broken when summer laborer, Charles Burton, stepped from the cab of a dump truck and sprained his ankle.

On April 4, refuge personnel initiated a project to develop a SAFETY procedure outline for every job undertaken on the area.

Bi-weekly (every Tuesday and Thursday), staff-SAFETY meetings were held with the entire staff, including summer seasonals, taking part. In October, these outlines were reviewed by the SAFETY Committee and compiled into a booklet Safe Job Procedures which was submitted to the Regional Office.

Other accidents occurring this period are as follows:

While cutting brush on an island clearing project on July 20, Harold Miller, summer seasonal, cut through a branch and the axe kept on going, cutting through the top of his boot and into the fleshy part of his large toe. Stitches were required to close the wound. No lost-time resulted.

Herbert Musselman, summer seasonal, tipped the John Deere 1010 tractor on its side while working on the by-pass road around the Chicago Farm Unit. He backed into a hole, which was covered with brush, tipping the tractor. He released the clutch and jumped clear. The TD-14, also working on the by-pass, was used to set the 1010 back on its tracks. No damage to machine or man resulted.

Woods SAFETY

Woods work is generally recognized as hazardous even to seasoned employees. The possibility always exists of obtaining Accelerated Public Works or Job Corps emergency forest project crews when administrating Federal lands. For these reasons, a Woods Work SAFETY Guide was developed.

The guide's intent is to furnish project supervisors with job outlines, hazard awareness and safe working techniques. Presentation of applicable contents to workers, and group discussions, should lead to improved organization and safer working conditions. Various items from tool repair to forest project work are covered.

SAFETY equipment purchased include goggles, foot guards and shin-guards. Other SAFETY items will be acquired as particular project hazards dictate.

VII. OTHER ITEMS

A. Items of Interest

1. Personnel

Roy J. Milligan entered on duty as refuge forester on March 8. Roy is from Gorham, New Hampshire.

Prior to his assignment at Seney, he was employed as a forester for the U.S. Forest Service in Arkansas and New Hampshire. His duties

consisted of conducting timber sales, timber stand improvement and fire suppression.

Roy received an A.A.S. Degree in Forestry from Paul Smith's College in New York and a B.S. Degree in Forestry from West Virginia University.

His duties at Seney include revising the Timber Management Plan and developing a new Land Use Plan.

The loggers and jobbers in the area welcomed Roy as they knew the hiring of a forester by the refuge would open more timberlands to cutting which would provide more jobs.

Since his arrival, Roy has developed a Fire Plan and a Woods Work SAFETY Handbook. He has also set up two timber sales which have been successfully completed in addition to type mapping 18,000 acres of refuge land.

Frank M. Baucom, Wildlife Aid, GS-4, entered on duty on June 15. He is a student at the University of Minnesota. Frank was an excellent worker, willing to learn and fitted in well with his associates. He always completed his assignments, even though it involved many extra hours of work during his "off-duty" time.

His duties included conducting the guided tour, attending the information desk at the visitor center, assisting in trapping and banding waterfowl, cleaning picnic areas and general maintenance work. He also spent many hours on habitat improvement work.

Frank departed September 24 to return to school. We wish him success in his final year.

Lee W. Mowbray, Wildlife Aid, GS-4, entered on duty on June 15. He had been a student at Michigan State University where he received his B.S. Degree in Wildlife Management in June, 1965.

Lee was an excellent, industrious worker who volunteered many hours on his own to complete a job. He was always willing to give a helping hand, no matter what the job was.

His duties included conducting the guided tour; attending the information counter at the visitor center; assisting in the waterfowl banding program, adapting various types of traps, baiting, capturing and handling the birds; general maintenance; farming; and habitat improvement work.

Lee was terminated on September 17. He returned to Michigan State University to continue in graduate work.

Lee's future plans are a "hitch" in the Army after completing his studies and a position with the Bureau upon discharge. We wish him success.

Gerald H. Updike, Wildlife Aid, GS-5, started work at Seney on June 21. He had just completed a year of graduate studies at Montana State University. Jerry received an A.A.S. Degree at Jackson Junior College, Jackson, Michigan, and a B.S. Degree in Wildlife Management at Michigan State University.

During the summer of 1964 Jerry worked for the Bureau of Land Management in Montana and Wyoming as a Range Aid. He is from Holt, Michigan

Jerry is an eager, willing and tireless worker. His ability to carry out any assignment won praise from the entire refuge staff. His attitude towards his job, fellow employees and the refuge generates a warm work relationship.

He remained on the staff as Wildlife Aid until November 21, 1965, when he received a Career Conditional Appointment as Wildlife Biologist (Trainee). He is filling the position vacated by the transfer of Glen A. Sherwood to the Northern Prairie Wildlife Research Center, Jamestown, North Dakota.

On August 21, 1965, Jerry returned to Montana where he was married. He and his wife, Marcia, reside on the refuge.

Leal N. Saunders was employed on July 6 under the President's Youth Opportunity Program. Upon termination on September 3, Leal returned to Newberry High School where he is enrolled as a senior.

We were lucky to have Leal with us this summer. With his quiet ways, one would hardly know he was around; but, upon checking at the end of the work day, you could see what had been accomplished. Leal worked diligently at any job and always managed to master any task assigned. His duties included lawn maintenance, picnic area clean up and maintenance, habitat improvement work, farming and trapping and banding geese. He also played the catchers position on the refuge's softball team. We missed Leal on his departure, but were glad that he returned to further his education.

Sara Ann Gagnon was employed as typist from July 14 to July 30. Her main duty was typing correspondence during Clerk Doran's absence.

Sara performed her duties well. She never complained of too much work or that the job was difficult. Some of the handwriting was hard to interpret, but she never gave up. Working around 17 men, learning Government procedures and being interrupted by tourists must have been arduous at times. Our hats are off to Sara for helping us through this period.

Glen A. Sherwood, Wildlife Biologist, transferred to Northern Prairie Wildlife Research Center, Jamestown, North Dakota, effective

August 29 to assume new duties as a Research Biologist. The entire staff was sorry to see Glen, his wife JoAnn, and two sons, Alan and Todd, depart. His never-ending assistance will be sorely missed by all. No matter how busily engaged, he always had time to help others with their problems or work. He will long be remembered in the Germfask-Seney area, as well as by the refuge, for his ability to get along with others, his willingness to help on any job and his participation in many community activities. He served as president of the Germfask P.T.A. and was an active member of the Germfask-Seney Lions Club.

Glen completed a 3 year, comprehensive study of the Seney goose flock. His outstanding report will soon be released.

We wish Glen success in his new venture.

Dr. I. Barry Tarshis, Patuxent Entomologist, carried out field studies on the blackfly project at Seney again this year. On his first trip in March the refuge was still snow bound but the staff, with the aid of the cannon net, captured 135 crows from which he obtained blood samples. Dr. Tarshis is a diligent and dedicated worker. His work day usually started at 6:00 A.M. and ended well after nightfall.

Basil Martin, Lab Technician, accompanied Dr. Tarshis on two trips to Seney.

2. Incentive Award

George Orlich, Heavy Duty Mechanic, received a $25.00 Incentive Award for his suggestion to place the manufacturers name on the first line of the property cards. This information will aid in taking physical inventories.

3. Articles on Seney

The 1965 Michigan Tech Forester (published annually by the Forestry Club, Michigan Technological University, Houghton, Michigan) featured Seney National Wildlife Refuge. An article, written by Orlynn J. Halladay, Assistant Refuge Manager, entitled Wilderness Heritage Restored was presented, with twenty-two photographs to illustrate the story. This article covered the period from the first white settlers in Michigan to the present time. It presented wildlife of the area, habitat improvement work and goose nesting island construction. Timber and farming programs were also discussed.

On September 26, The Milwaukee Journal (Sunday Picture Journal) carried a "special" on Seney National Wildlife Refuge. The article was entitled Seney Wildlife Refuge, Stop-Off on the Mississippi Flyway. The paintings and sketches were by Mr. Richard Kaneiss and the text written by Jay Scriba, both of the Journal Staff. Mr. Kaneiss used both oils and water color. The Journal featured five

colored pictures and 11 sketches in its presentation. Mr. Scriba's article covered Seney from the days when the forests were stripped of timber to the present time. This included draining of the area for farming, building the dikes which impounded the pools and the beginnings of the goose flock. Recreation facilities which are available were also listed. The article was an excellent coverage of the "Seney Story".

4. Refuge Participation In Community Affairs

On July 29, when the Harold Peters residence south of Germfask caught fire, our pumper unit was summoned into duty. The house was a total loss, but a garage and a nearby cabin were saved.

B. Photographs

Each photograph is marked as to the photographer and date photo was taken. The refuge Minolta Autocord camera was used.

Credits:

Doran - - - - - Sections I-A, VI-B,C,F, VII-A,B,C, typing, photo printing, mounting and assembly.

Hakala - - - - Editing.

Halladay - - - Sections III-A,B,C,D, IV-A,B,C,E,F, VI-A,D,E, VII-B, photo printing and captions.

Milligan - - - Sections III-E,F, IV-D, V-E.

Updike - - - - Sections I-B, II, V-A,B,C,D, photo printing.

SIGNATURE PAGE

Submitted by:

(Signature)

John B. Hakala

Refuge Manager
Title

Date: February 9, 1966

Approved, Regional Office:

Date: March 11, 1966

(Signature)

Asst.
Regional Refuge Supervisor

3-1750
Form NR -
(Rev. March 1953)

WATERFOWL

REFUGE Seney MONTHS OF September TO December, 1965

(1) Species	(2) Weeks of reporting period									
	9/1-8 1	9/9-15 2	9/16-22 3	9/23-29 4	9/30-10/6 5	10/7-13 6	10/14-20 7	10/21-27 8	10/28-11/3 9	11/4-10 10
Swans:										
Whistling					2				2	2
Trumpeter										
Geese:										
Canada	1050	1050	1400	1800	3600	4300	4400	4200	3200	3300
Cackling										
Brant										
White-fronted										
Snow						50	100			
Blue					10	100	150	10	1	1
Other (Richardsons)						50				
Ducks:										
Mallard	200	250	350	400	500	500	650	450	350	200
Black	175	225	400	400	600	700	800	700	650	550
Gadwall										
Baldpate	10	50	150	60	25	150	150	100	75	
Pintail										1
Green-winged teal	10	25	30	30	25	100	150	150	50	
Blue-winged teal	500	400	300	400	250	50				
Cinnamon teal										
Shoveler										
Wood	100	100	150	150	70	100	100	100	25	
Redhead			10						5	
Ring-necked	400	500	1200	1300	4500	2500	3300	2000	300	200
Canvasback										
Scaup		10	10	10	10	20	25	25	25	15
Goldeneye	10	10	25	20	20	20	50	50	50	75
Bufflehead		10	10	10	10	10	10	50	50	75
Ruddy										
Other										
Hooded Merganser	100	100	50	30	40	40	40	75	150	100
Common Merganser	80	80	60	75	75	50	80	100	100	150
Coot:	5	5	20	30	50	35	20	10		

3 -1750a
Cont. NR.
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Seney MONTHS OF September TO December, 19 65

(1) Species	(2) Weeks of reporting period: 11/11-17 (11)	11/18-24 (12)	11/25-12/1 (13)	12/2-8 (14)	12/9-15 (15)	12/16-22 (16)	12/23-29 (17)	12/30-31 (18)	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimated total
Swans:											
Whistling									42		
Trumpeter											
Geese:											
Canada	2900	1000	800	10	5	3	3	3	231,168		
Cackling											
Brant											
White-fronted											
Snow									1,050		
Blue	1	1							1,918		
Other (Richardsons)									350		
Ducks:											
Mallard	100	30							27,860		
Black	250	100	10						38,920		
Gadwall											
Baldpate									5,390		
Pintail											
Green-winged teal									13,990		
Blue-winged teal									13,300		
Cinnamon teal											
Shoveler											
Wood									6,265		
Redhead									105		
Ring-necked									113,400		
Canvasback											
Scaup									1,050		
Goldeneye	30								2,485		
Bufflehead	30								1,505		
Ruddy											
Other											
Hooded Merganser	20								5,215		
Common Merganser	50								7,350		
Coot:									955		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	42	2	
Geese	234,486	4,650	
Ducks	226,835	6,125	
Coots	955	50	

SUMMARY

Principal feeding areas Geese: Diversion Field, Sub-Hdqs. Field, Chicago Farm, A-1, B-1, E-1, F-1 and C-3. Ducks: A-1, B-1, C-1, F-1, G-1, H-1, I-1 and C-3 Pools

Principal nesting areas

Reported by Gerald H. Updike

Gerald H. Updike, Wildlife Biologist

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

76242

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Seney Months of September to December 1965

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Common Loon	Summer Resident				2	9-8				40
Pied-billed Grebe	Summer Resident									60
Horned Grebe			(none observed)							10
American Bittern	Summer Resident									125
Great Blue Heron	Summer Resident				1	11-16				100
Green Heron	Summer Resident		1	9/14	1	9-16				5
Sandhill Crane	Summer Resident				7	9-16				90
Sora Rail	Summer Resident		(none observed)							70
Virginia Rail	Summer Resident		(none observed)							50
II. Shorebirds, Gulls and Terns:										
Woodcock	Summer Resident		2,500	9/15-10/1						3,500
Common Snipe	Summer Resident		250	10/1-30						350
Greater Yellowlegs	Summer Resident		200	9/15-25						200
Killdeer	Summer Resdient									150
Spotted Sandpiper	Summer Resident									150
Solitary Sandpiper	Summer Resident									50

(over)

(1)	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove	1	9-30			1	10-10		3
White-winged dove								
IV. Predaceous Birds:								
Golden eagle								
Duck hawk								
Horned owl	Resident (none observed)							30
Magpie Snowy Owl	1	12-9	1	12-9	1	12-9		4
Raven	Resident		70	12/1-31	31	12-22		70
Crow	Summer Resident		300	9/1-30	4	12-22		350
Marsh Hawk	Summer Resident				1	9-11		70
Rough-leg Hawk	1	10-23			1	10-23		20
Bald Eagle	Summer Resident				2	12-22		10

Reported by Gerald H. Updike

Gerald H. Updike, Wildlife Biologist

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

36104

3-1752
Form -2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Seney Months of September to December, 1965

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse	Upland Pine, Hardwood and swamp edge. 30,000 acres	20							1,500	Incidental Observations
Spruce Grouse	Spruce and Jackpine forest. 5,000 acres	50							100	Incidental Observations
Sharp-tailed Grouse	Brushland, open terrain, farm units, roads and dikes. 10,000 acres	40							250	Spring census and Incidental Observations

Gerald H. Updike

Gerald H. Updike
Wildlife Biologist

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-175[illegible]
Form [illegible]-3
(June 1945)

BIG GAME

Refuge Seney Calendar Year 1965

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White-tailed Deer	Variable - marshland, hardwoods, coniferous forests, brushland and open ground - 80,000 acres	Unknown	210	0	0	0	U	U	0	0		1,800 *	50	
Black Bear	Variable - marshland, hardwoods, coniferous forests, brushland and open ground - 80,000 acres	Unknown	1	0	0	0	U	U	U	0		20	20	

Remarks: * Based on observations and deer drives conducted on two areas by Refuge and Michigan Conservation Department personnel on November 3, 1965.

Reported by Gerald H. Updike
Gerald H. Updike, Wildlife Biologist

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of <u>each</u> <u>species</u> on the refuge at period of its greatest abundance and also as of Dec. 31.

(8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

17060

3-1755
Form M[illegible]5
60701

DISEASE

Refuge Seney Year 1965

Botulism

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.

Condition of vegetation and invertebrate life _____

Remarks _____

Lead Poisoning or other Disease

Kind of disease Unknown

Species affected Canada Goose

Number Affected Species	Actual Count	Estimated

Number Recovered 14

Number lost 75

Source of infection _____

Water conditions Normal

Food conditions Normal

Remarks Most of the ill goslings had some sort of crippling ailment whereby they were unable to keep up with the brood and become susceptible to exposure and depredation. (Leucocytozoon and/or Aspergillosis) are possible contributing factors.

NR-6

Bureau of Sport Fisheries and Wildlife

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge Seney

Calendar Year 1965

1. Visits

a. Hunting 4,380 b. Fishing 5,832 c. Miscellaneous 56,616 d. TOTAL VISITS 66,828

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl	None		
Upland Game	None		
Big Game	4,380	87,000	
Other	None		

Number of permanent blinds None

Man-days of bow hunting included above None

Estimated man-days of hunting on lands adjacent to refuge 4,500

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes	759	
Streams and Shores		21

1c. Miscellaneous Visits

Recreation 51,577 Official 2,895

Economic Use 2,144 Industrial None

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On Refuge NO. OF GROUPS	On Refuge NUMBER IN GROUPS	Off Refuge NO. OF GROUPS	Off Refuge NUMBER IN GROUPS
Sportsmen Clubs				
Bird and Garden Clubs	1	60		
Schools	14	580	3	151
Service Clubs			3	96
Youth Groups	2	181		
Professional-Scientific			2	320
Religious Groups				
State or Federal Govt.	3	106	2	80
Other County Extension Service	1	7	1	12

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	6	Radio Presentations	
Newspapers (P.R.'s sent to)	12	Exhibits	
TV Presentations		Est. Exhibit Viewers	

3-1756

(Rev. 4/63)

3-1757
Form NR-,
(April 1946)

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Seney Year 1965

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Planting	Survival	Cause of Loss	Remarks
Carex spp. Eleocharis acicularis Scirpus acutus Scirpus validus	I-1 Pool Islands (30)	2 bunches per yard	1,500 yards	3,000 bunches transplanted	July	Good		Transplanted to control island erosion
Phalaris arundinacea	I-1 Pool Islands		20 sq. ft.	20 sq. ft. of sod transplated	June 10	Unknown		Experimental transplanting

TOTAL ACREAGE PLANTED:

Marsh and aquatic.....
Hedgerows, cover patches.....
Food strips, food patches.....
Forest plantings.....

Interior—Duplicating Section, Washington, D. C.

24315

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Seney County Schoolcraft State Michigan

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Waterfowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Buckwheat					56	560 bu	56	Winter Rye - one ton of graze forage	8
Oats	40	2,200 bu			63	1,170 bu	103		
Winter Rye							8	Tame hay - thirty-two tons of graze forage	179
Winter Rye					55	1,650 bu	Planted in 1964		
New Seeding (Alfalfa, Clover and Brome)							103		
								Fallow Ag. Land Diversion Unit	50

No. of Permittees: Agricultural Operations 1 Haying Operations 1 Grazing Operations none

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Alfalfa, Clover and Brome	220	179		1. Cattle	none			
				2. Other	none			
				1. Total Refuge Acreage Under Cultivation Includes fallow land listed above				451
Hay - Wild				2. Acreage Cultivated as Service Operation Includes fallow land listed above				218

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

INT.-DUP. SEC., WASH., D.C. 91767

3-1570
NR-88
(4/54)

REFUGE GRAIN REPORT

Refuge Seney Months of January through December, 1966

(1) Variety*	(2) On Hand Beginning of Period	(3) Received During Period	(4) Total	(5) Grain Disposed of				(6) On Hand End of Period	(7) Proposed or Suitable Use*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Yellow Corn	453 bu.	420 bu.	873 bu.			615 bu.	615 bu.	258 bu.		258 bu.	
Rodney Oats	1 bu.	71 bu.	72 bu.		65 bu.		65 bu.	7 bu.	7 bu.		
Ausable Oats	0 bu.	35 bu.	35 bu.		29 bu.		29 bu.	6 bu.	6 bu.		
Winter Rye	33 bu.	50 bu.	83 bu.		31 bu.		31 bu.	52 bu.	52 bu.		

(8) Indicate shipping or collection points

(9) Grain is stored at Granary in stone building and metal grain bins.

(10) Remarks Condition good.

*See instructions on back.

NR-8a

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR–9.

(3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.

(4) A total of columns 2 and 3.

(6) Column 4 less column 5.

(7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters granary," etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

INT.-DUP. SEC., WASH., D.C. 17065

3-1760
Form NR[illegible]
(April 19[illegible])

HAYING AND GRAZING

Refuge ~~Seney~~ Year 1966

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
		NONE THIS PERIOD							

Totals:

Acreage grazed..... Animal use months..... Total income Grazing.....

Acreage cut for hay..... Tons of hay cut..... Total income Haying.....

3-1761
Form NR-1.

TIMBER REMOVAL

Refuge Seney Year 1965

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
Mr. Richard Brow	34912	Delta Creek	52	285 Cords	$1.00/cd	$285.00	Merchantable stick	Jack Pine
Mr. Robert Fox	34913	Marsh Creek	66	320 cords	$1.00/cd	$320.00	Merchantable stick	Jack Pine
Mr. Robert Fox	"Use" under above No.	Chicago Farm By-pass	3	30 Cords	None	None	Clear out road right-of-way for products obtained	Aspen 30% Paper Birch 25% Misc. 45%
Seney Refuge Use	--------	Unit II & III dike system	------	4,500 B.F.	None	None	Dead or Down Salvage Sawlogs	Norway Pine 92% White Pine 8%

Total acreage cut over 121 Total income $605.00

No. of units removed B. F. 4,500 Method of slash disposal Scatter

Cords 635

Ties

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PERSTICIDE APPLICATION

Refuge: Seney

Proposal Number:

Reporting Year: 1965

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		None this Period						

10. Summary of results (continue on reverse side, if necessary)

35500

PEST PLANT CONTROL REPORT

Seney Refuge, Calendar Year 1965

(To be inserted in the September-December Narrative Report.)

Plot No.	Acres	Species Treated	Growth Stage	Date of Treat.	Chem. or Method Used	Dilut. or Carrier	Rate Per Acre	Water Depth	Cost					% Kill last Observ.	Date last Observ.
									Material	Labor	Equipment	Total	Per Acre		
			None This Period												

INSTRUCTIONS ON REVERSE SIDE

Additional forms will be supplied by Regional Office upon request.

Remarks: Include any important information not given in above columns, including No. of years an area has been treated where repeated treatments have been made.

R3-WC1 - April 20, 1962

INSTRUCTIONS

1. Plot No: Number used to identify the area of infestation in the field and on maps.

2. Acres: Use decimals, not fractions.

3. Species Treated: Use common and scientific names. LIST ONE SPECIES - THE PRIMARY ONE.

4. Growth Stage: i.e., Bud, half leaf, full leaf, early flower, full flower, etc.

5. Date of Treatment: Dates applications were made, using a separate line for each area treated. If more than one treatment is made on the same area during the summer, a separate line is used for each application.

6. Chemical or Method Used: Show type of herbicide; i.e., 2,4-D ester, etc., also mechanical methods (mowing, plowing, burning etc.)

7. Diluent or Carrier: Show diluent or carrier used plus stickers, spreaders, etc.

8. Rate Per Acre: Give lbs. acid equivalent per acre - not lbs. of herbicide or total mix. Check the label for % of acid equivalent.

9. Water Depth: Give depth in inches.

10. Cost, Material: Include herbicide and carrier.

11. Cost, Labor: Take from Application form.

12. Cost, Equipment: Take from Application form.

13. Total Cost: Take from Application form.

14. Cost per Acre: Take from Application form.

15. % Kill: Show percent dead plants with no regrowth showing at last observation.

16. Date Last Observation: Last date plants were checked following mechanical treatment or application of herbicide. If the same area is treated more than once during the same season, a new entry should be made on a separate line for each separate treatment. If the same area has been treated for several years, this should be shown in the space for remarks, giving the number of years the area has been treated.

Fig. 3. Seney abounds with scenic beauty. This shot won third place in the 1965 Region 3 photo contest.

March 15, 1965

R 70-9

Halladay

Fig. 4. Roy J. Milligan entered on duty March 8, 1965 as refuge forester. He has seen a great deal of the "back country" while doing forest inventory work.

March 11, 1965 R 70-3

Sherwood

Fig. 5. Newest member to the refuge staff is Gerald H. Updike. Jerry received his career conditional appointment on November 21, 1965 and has been doing an excellent job with the biological duties.

February 4, 1966 R 98-9

Halladay

Fig. 6. Every afternoon about 4:30 the headquarters flock parades to the bay near the Visitor Center. Do you detect an expression of expectancy?

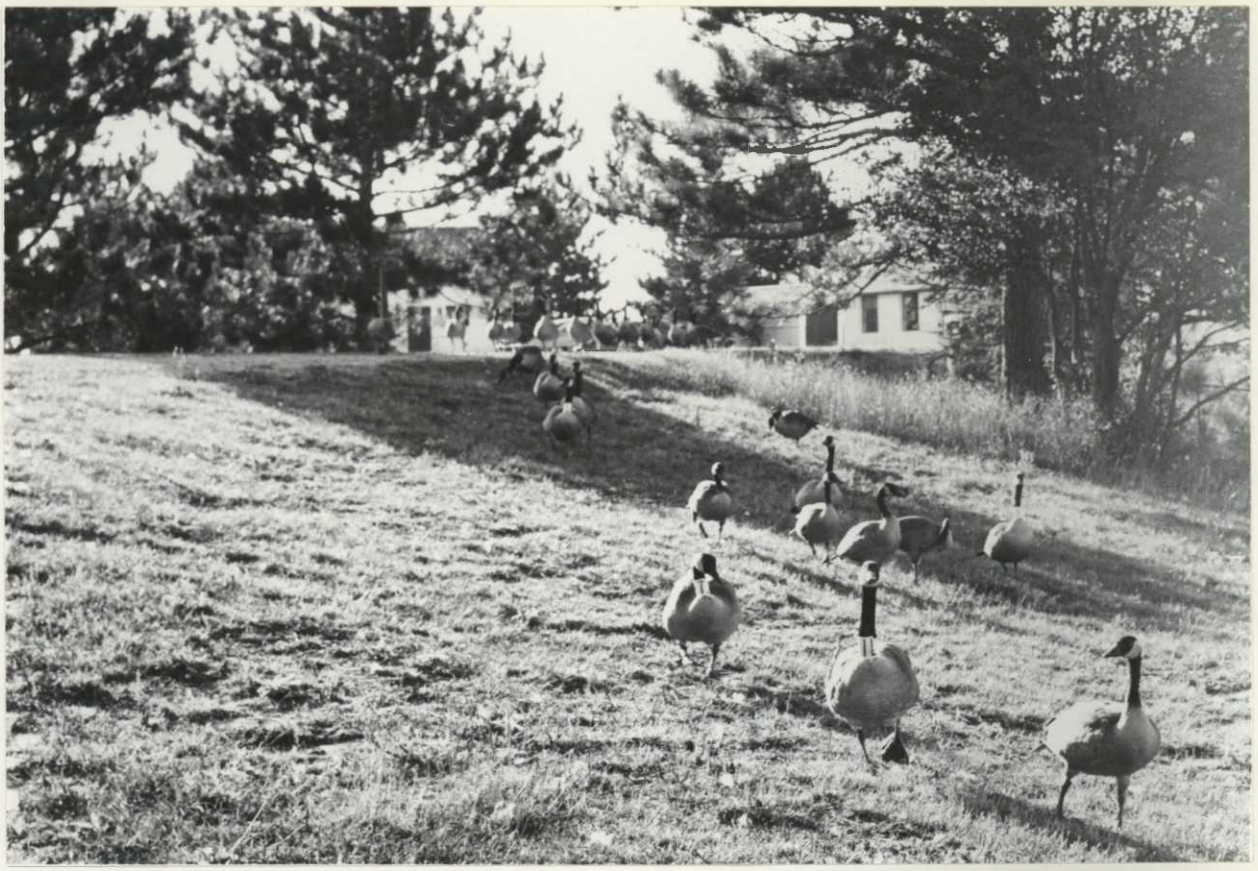
August 20, 1965 R 96-4

Hakala

Fig. 7. The handout is free and is relished by all. These birds have been photographed many hundreds of times as visitors come to take the evening tour.

August 20, 1965 R 96-5

Hakala



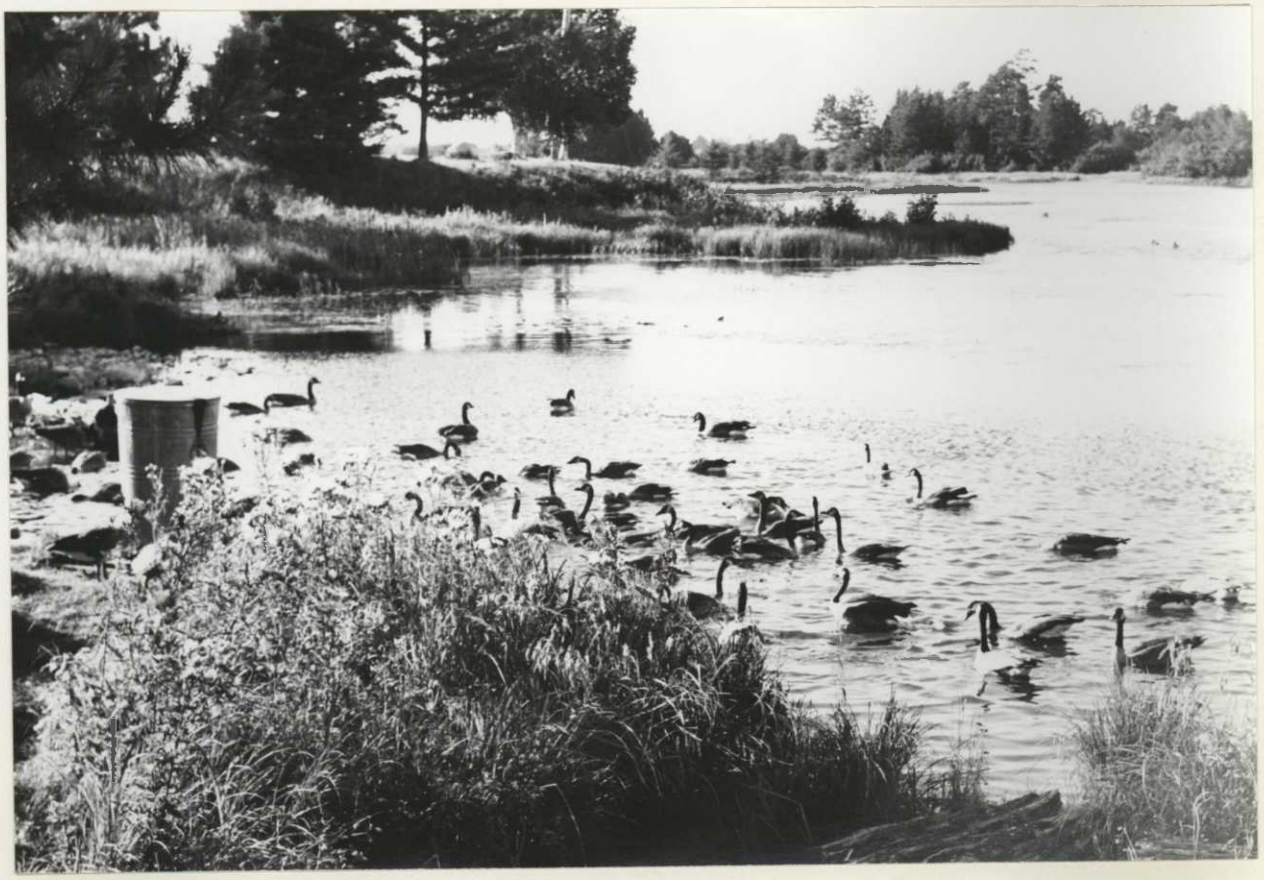


Fig. 8. The first step in making the plastic goose collars. Strips 2½" x 12" are cut from sheets of plastic.

February 24, 1965 R 68-12

Sherwood

Fig. 9. The ends of the strips are tapered to a thin edge and the corners are rounded on the bench grinder.

February 24, 1965 R 69-4

Sherwood

Fig. 10. Round corners and tapered ends produce a smoother finished collar, with less chance of snagging while being worn by the bird.

February 24, 1965 R 69-5

Sherwood

Fig. 11. The figures are etched in the plastic with a hand electric rotary grinder and painted with black lacquer.

February 25, 1965 R 69-8

Sherwood

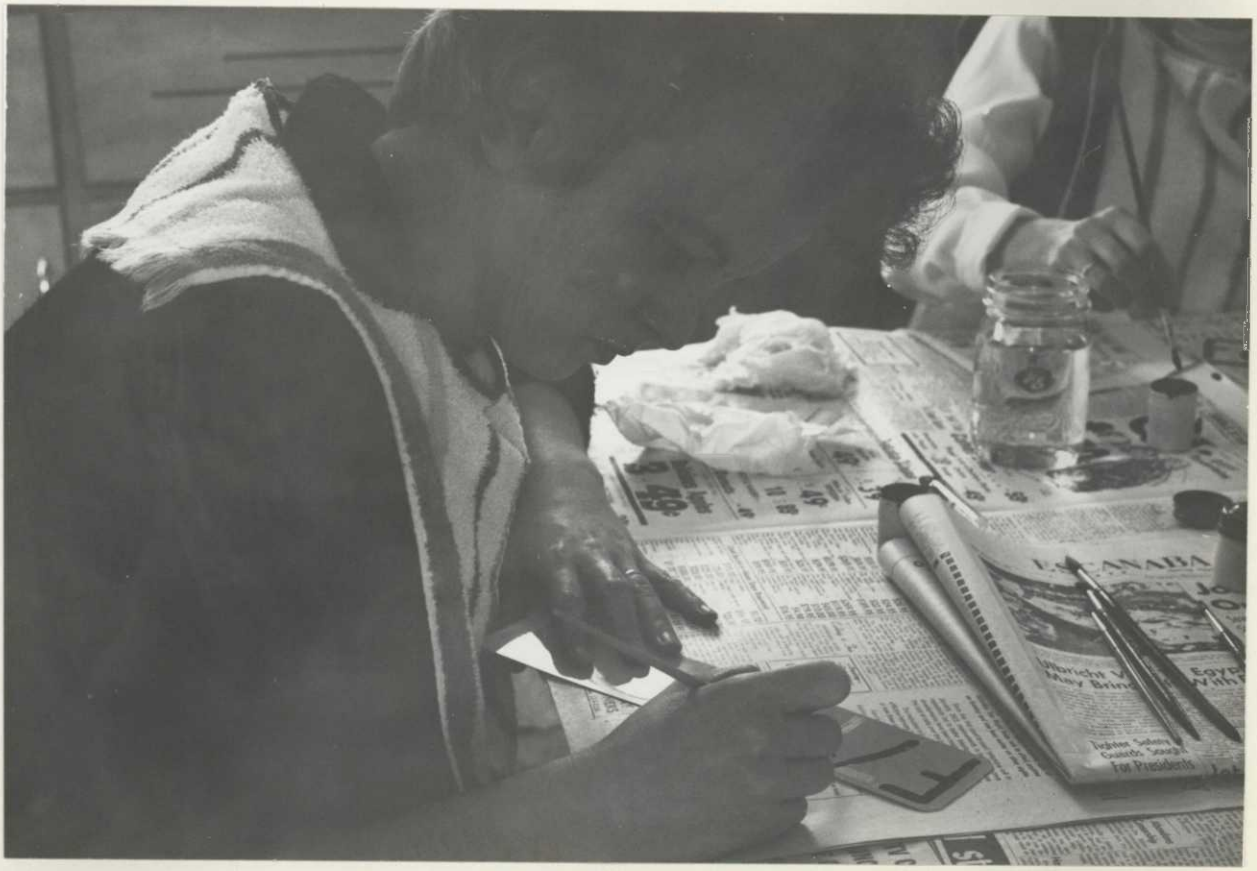


Fig. 12. The plastic strips are placed on a cookie sheet and heated from 35 to 45 seconds at 200°F.

March 7, 1965 R 69-10

J. Sherwood

Fig. 13. The pliable strips are rolled on a piece of 1½ inch pipe. They cool and harden again in a few seconds.

March 7, 1965 R 69-11

J. Sherwood


S5S5


S5S5

Fig. 14. Flocks of corws came to the trap site baited for geese. They were surprised to find themselves under the net!

April 2, 1965 R 71-1

Sherwood

Fig. 15. A SAFETY cab was constructed and mounted on the TD-14.

June 24, 1965 R 79-4

Sherwood

Fig. 16. Line-up of vehicles that were painted during this period. All but 2 of these vehicles were acquired from military surplus.

June 24, 1965 R 79-1

Sherwood

Fig. 17. A cab was installed on the Austin-Western H-99 Grader.

May 3, 1965 R 72-12

Sherwood


5A USAR
CP McC

Fig. 18. Dr. I. Barry Tarshis and his assistant Basil Martin spreading cheese cloth below A-1 spillway to collect black fly larvae. Dr. Tarshis is studying the black fly link of the Leucocytozoon problem.

April 9, 1965 R 89-4

Hakala

Fig. 19. Black fly larvae attach themselves to the cheese cloth and can be readily collected.

April 9, 1965 R 89-2

Hakala


Willia
COFFE
MAXWE
15¢ OFF HOU


Wilkins

Fig. 20. The Michigan Department of Conservation trap fish in the refuge pools each spring under a cooperative agreement.

April 27, 1965 R 72-5

Sherwood

Fig. 21. Under the agreement, 20% of the legal sized fish are released in the Show Pools which are open to public fishing.

April 27, 1965 R 72-3

Sherwood


12649

Fig. 22. Refuge clerk Doran demonstrates the use of the 200 gallon fire pumper. He also explained proper use of the various other types of fire extinguishers.

June 30, 1965 R 82-2

Hakala

Fig. 23. Refuge manager Hakala presents refuge mechanic Orlich with $25 Incentive Award for his suggestion to list the manufacturers name on the first line of the property card.

July 1, 1965 R 83-5

Halladay


INFORMATION
SENEY NATIONAL WILDLIFE REFUGE
Self-Guided
Tour
Begins July

Fig. 24. Turning under green manure on the Diversion Unit.

June 1965 R 76-2

Hakala

Fig. 25. Soil improvement in progress. Liming at 3 ton per acre has helped sweeten this muck soil.

May 1965 R 75-12

Hakala

Fig. 26. Cover cropping with oats seeded to Ladino, Alsike and Brome.

June 1965 R 76-7

Hakala

Fig. 27. Encroachment by tag alder is a constant problem. Vistas along the Nature Trail were being screened out.

June 17, 1965 R 77-5

Sherwood

Fig. 28. The brush chipper facilitates easy transport and disposal of the brush after it is cut.

June 18, 1965 R 78-3

Sherwood

Fig. 29. After brush removal the back bays can be easily observed by visitors hiking the trail.

July 1, 1965 R 82-10

Hakala


U.S.ARMY
DANGER

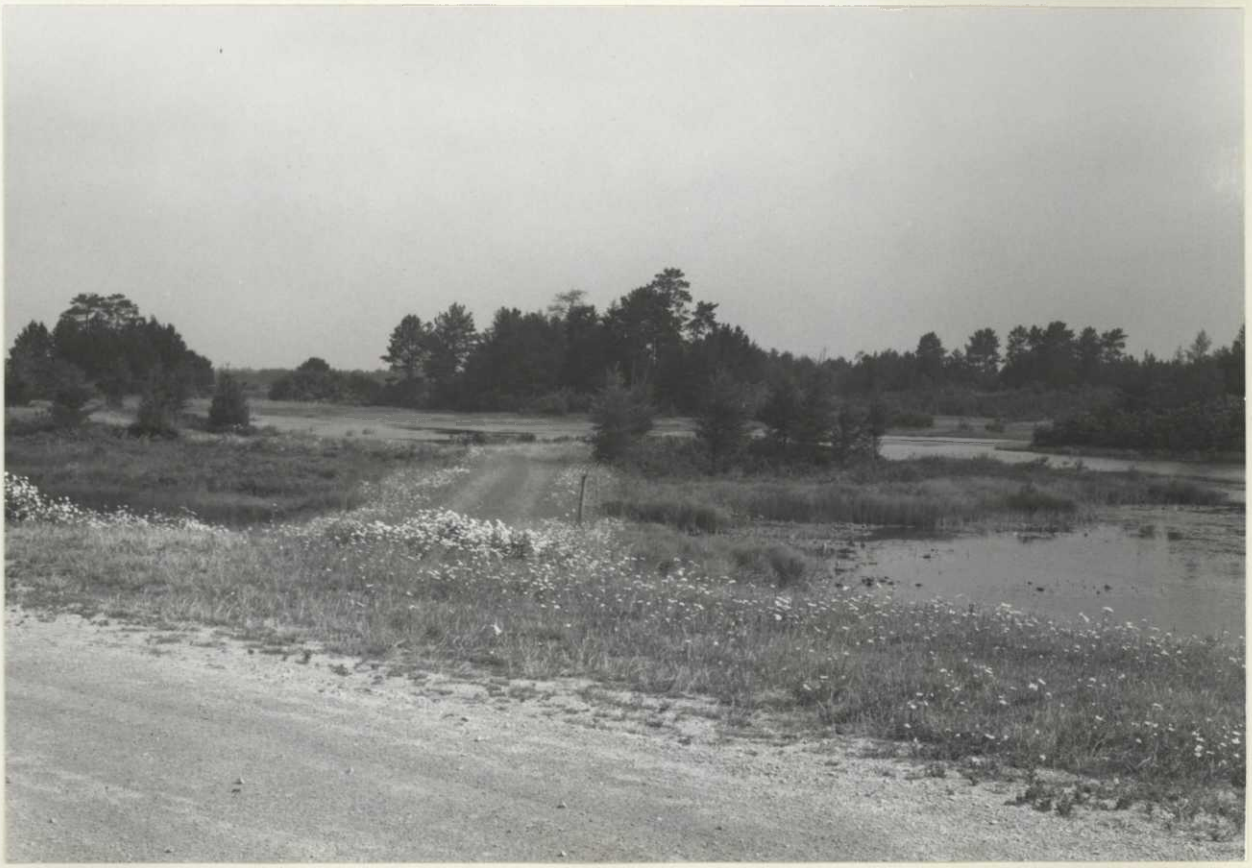


Fig. 30. Time and decay had shown their effect on the radial gates at the Upper Goose Pen.

July 5, 1965 R 91-3

Hakala

Fig. 31. New facings were put on the gates and the entire installation was checked over.

July 12, 1965 R 93-2

Hakala

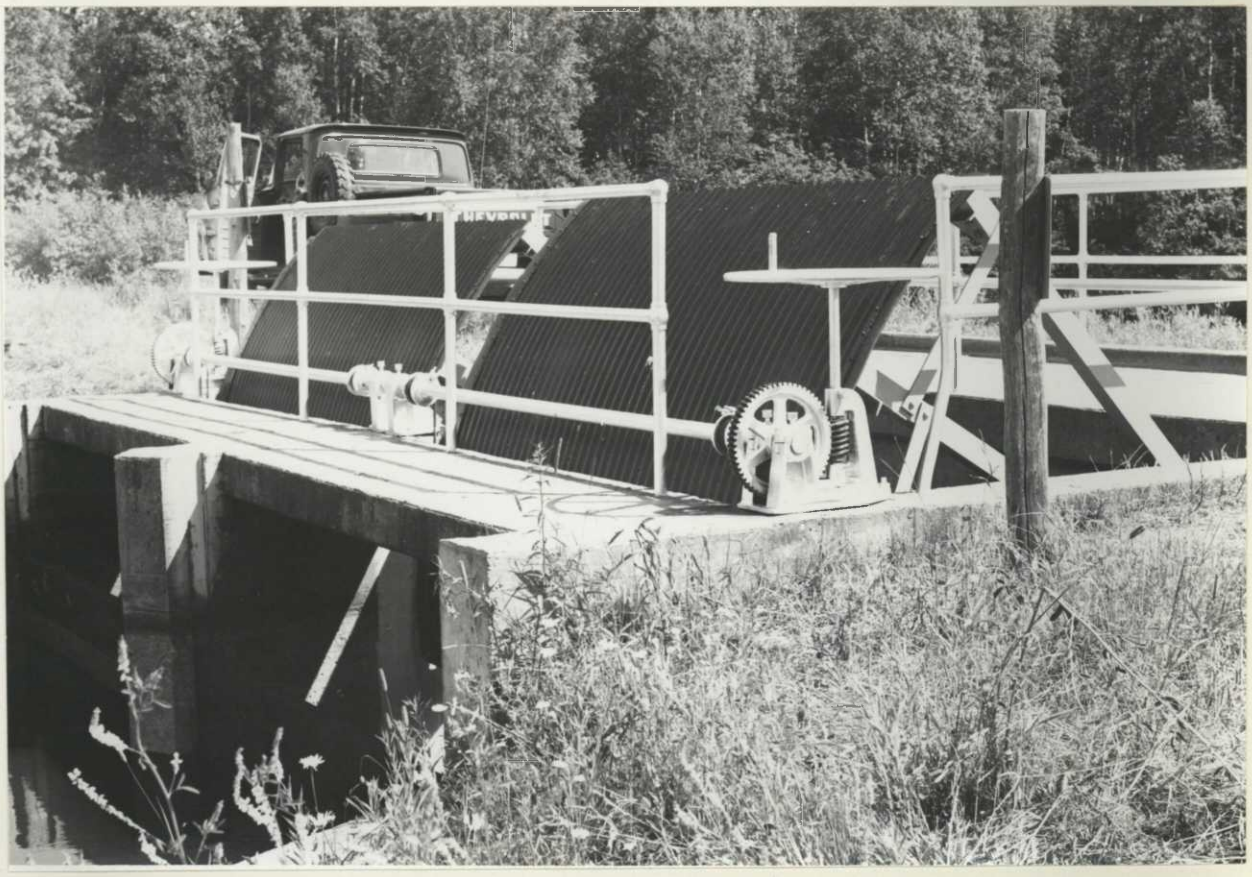


Fig. 32. Jack pine stand along Delta Creek before pulp sale.

July 21, 1965 R 84-9

Milligan

Fig. 33. Cutting operations at Delta Creek opened the stand and will result in improved wildlife habitat.

July 21, 1965 R 84-6

Milligan

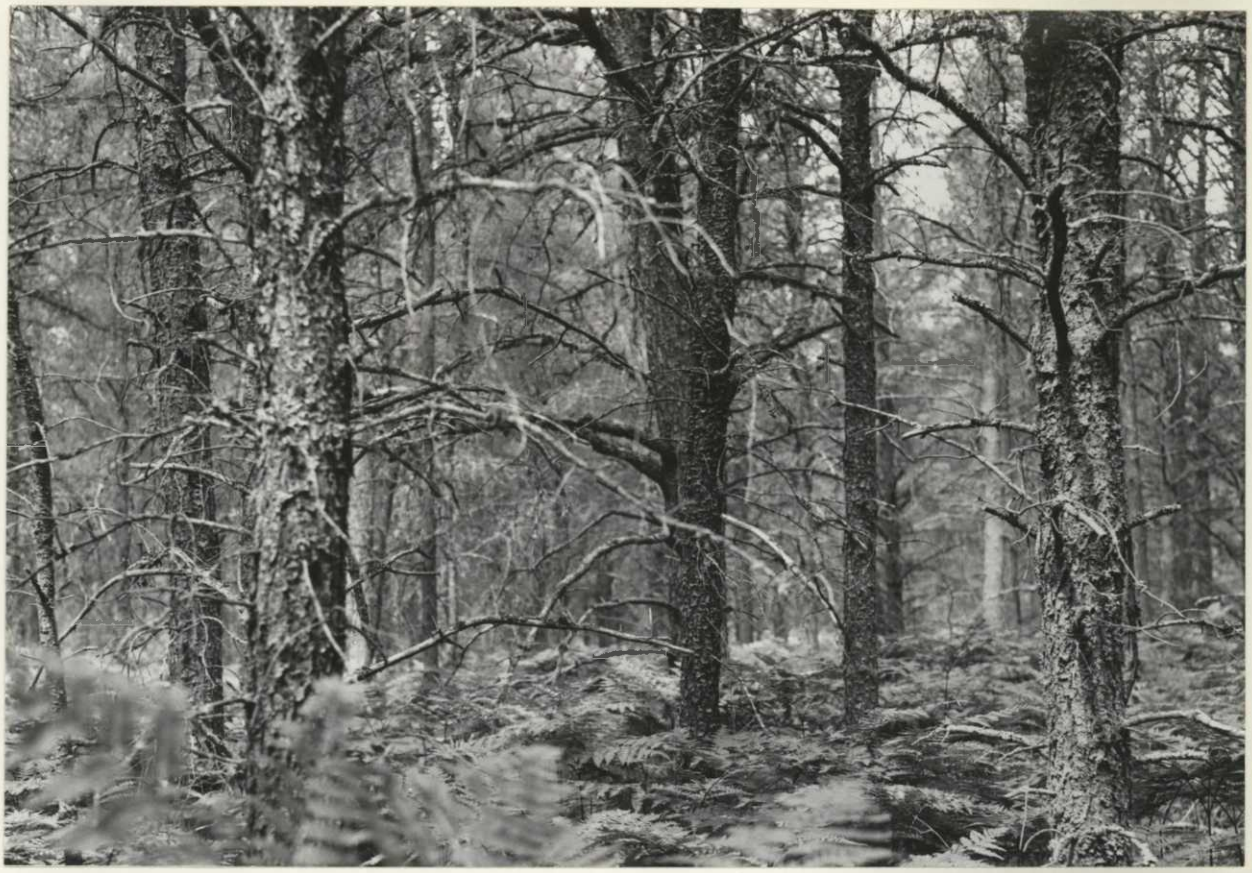


Fig. 34. Forest products - utilization of a valuable resource while improving conditions for wildlife.

July 21, 1965 R 84-2

Milligan

Fig. 35. Piling the pulp sticks at a point where they can be easily loaded for hauling out.

October 6, 1965 R 85-9

Hakala

Fig. 36. The C-3 Pool attracts numerous fishermen throughout the season from July 1 to Labor Day.

July 2, 1965 R 83-11

Updike

Fig. 37. All prepared for a big one!

July 2, 1965 R 83-9

Updike

Fig. 38. The new Visitor Center was dedicated and officially opened to the public on May 30, 1965.

May 30, 1965 Regional Office file

Trecker

Fig. 39. The diorama of the Canada Goose family group has made a hit with the visiting public.

February 3, 1966 R 98-1

Halladay

Fig. 40. The "Seney Story" explaining the development and mission of Seney Refuge is presented through a series of panels.

February 3, 1966 R 98-6

Halladay


CANADA GOOSE LIFE STORY

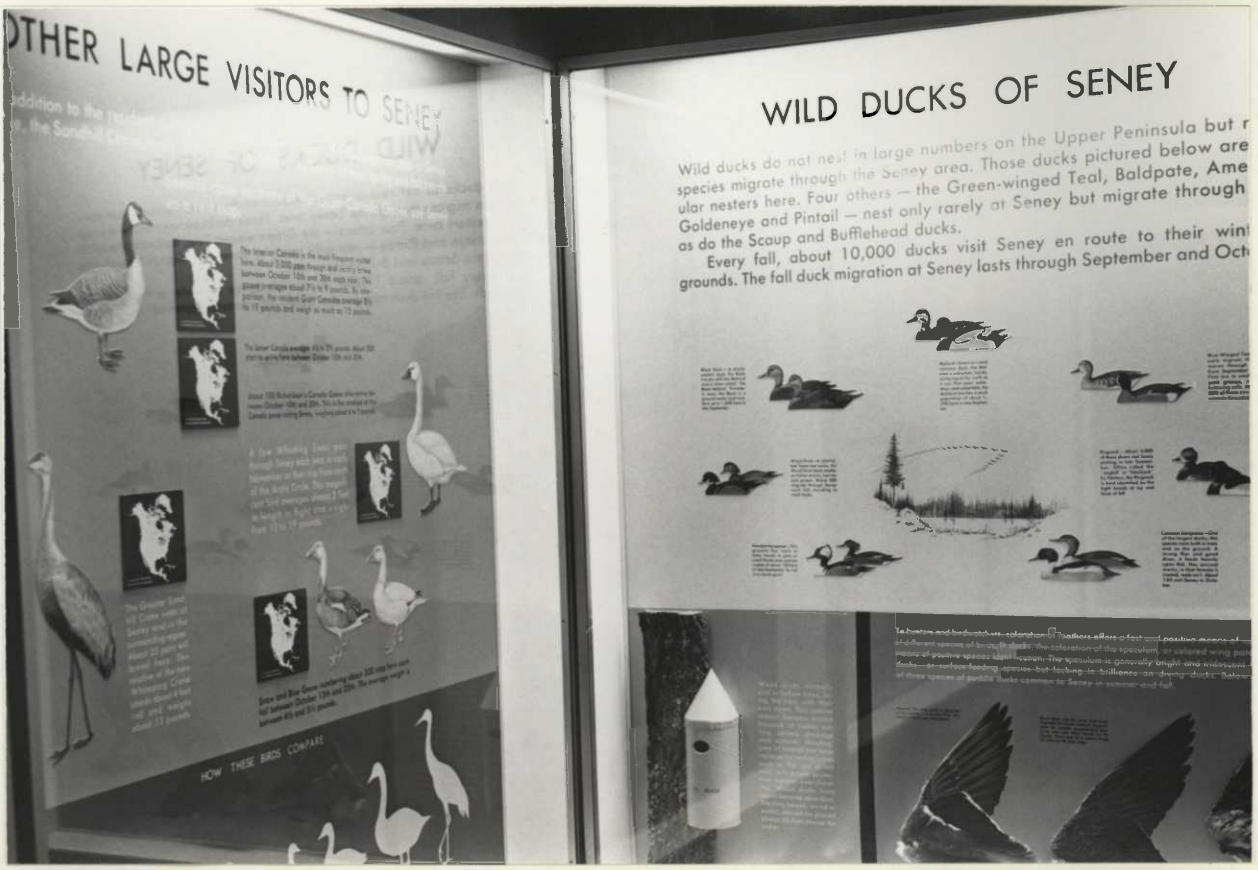

OTHER LARGE VISITORS TO SENEY
HOW THESE BIRDS COMPARE
WILD DUCKS OF SENEY
Wild ducks do not nest in large numbers on the Upper Peninsula but r
species migrate through the Seney area. Those ducks pictured below are
ular nesters here. Four others — the Green-winged Teal, Baldpate, Ame
Goldeneye and Pintail — nest only rarely at Seney but migrate through
as do the Scaup and Bufflehead ducks.
Every fall, about 10,000 ducks visit Seney en route to their wint
grounds. The fall duck migration at Seney lasts through September and Oct

Fig. 41. The refuge attracts special groups as well as family visitors. Four bus loads of 4-H'ers meet on the Visitor Center lawn prior to a tour through Unit I.

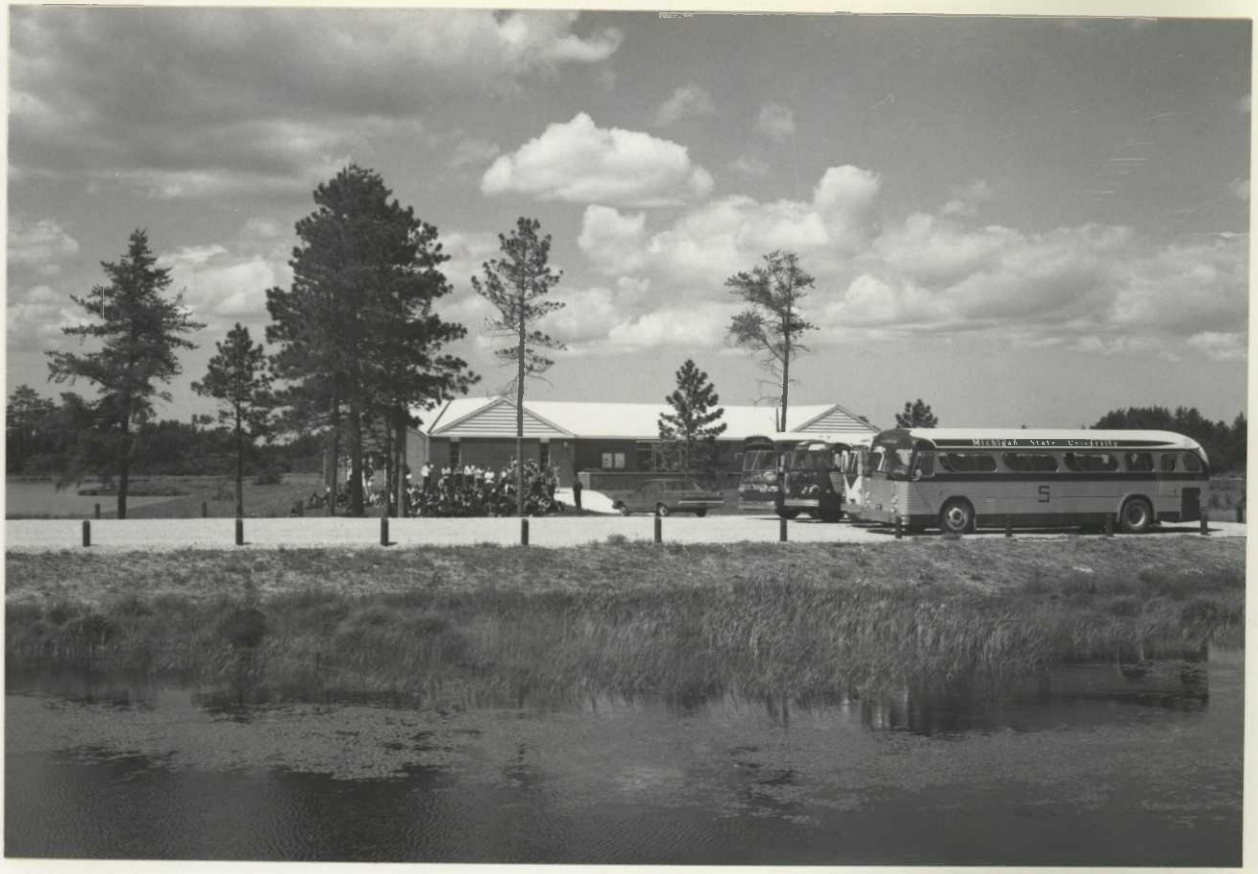
June 25, 1965 R 79-11

Sherwood

Fig. 42. Touring the refuge by car caravan has become a popular refuge use. The tour guide gives an introduction to the area before starting out on the tour.

June 1965 R 80-9

Hakala




NATURE CENTER
VISITOR PARKING

Fig. 43. The Walsh crossing of the Soo Line Railroad was improved to meet the specifications of a public crossing. Railroad crossing signs were installed, brush was cleared and the raw soil was mulched to prevent erosion.

July 1, 1965 R 82-6

Hakala

Fig. 44. Heavy use is made of the Walsh siding by jobbers who are cutting pulp, chemical wood and some saw logs on nearby State lands.

June 1965 R 76-6

Hakala

Fig. 45. View of the old stairway in the Headquarters Building.

July 12, 1965 R 84-1

Sherwood

Fig. 46. This new stairway replaces the one above. It is wider and has a more gradual pitch making it much safer.

February 3, 1966 R 97-12

Halladay

Fig. 47. Loading the refuge share of hay at Conlon Field.

August 11, 1965 R 90-1

Halladay

Fig. 48. Duck's eye view of the water control structure from Upper Goose Pen to Lower Goose Pen. The water was drawn down to repair the structure.

July 12, 1965 R 93-4

Hakala

Fig. 49. A tag alder jungle! The dense crown canopy practically eliminated any ground cover. Maintenance man Losey works his way into it.

August 19, 1965 R 95-12

Hakala

Fig. 50. The log loading attachment on the John Deere 1010 was useful in consolidating brush piles for burning.

August 19, 1965 R 95-11

Hakala

Fig. 51. Looking south toward the Lower Goose Pen from the southeast corner of Smith Field -- Before.

July 12, 1965 R 93-5

Hakala

Fig. 52. Looking south toward Lower Goose Pen from Smith Field -- After. A total of 17 acres of brush were cleared this period.

August 25, 1965 R 90-10

Halladay

Fig. 53. The southern end of Smith Field as viewed from the south. This area was characterized by deep gullies.

August 15, 1965 R 90-2

Halladay

Fig. 54. Looking east across lower Smith Field. The rough terrain made tillage impractical and unsafe. The area received very little wildlife use.

August 15, 1965 R 90-6

Halladay

Fig. 55. Breaking the sod on Smith Field with a Rome disk prior to land leveling.

July 29, 1965 R 94-8

Hakala

Fig. 56. Approximately 8 acres were reclaimed as top soil was pushed aside and the gullies were filled. The top soil was replaced and seeded to winter rye. Canada Geese made use of the area already this fall.

August 25, 1965 R 93-8

Halladay

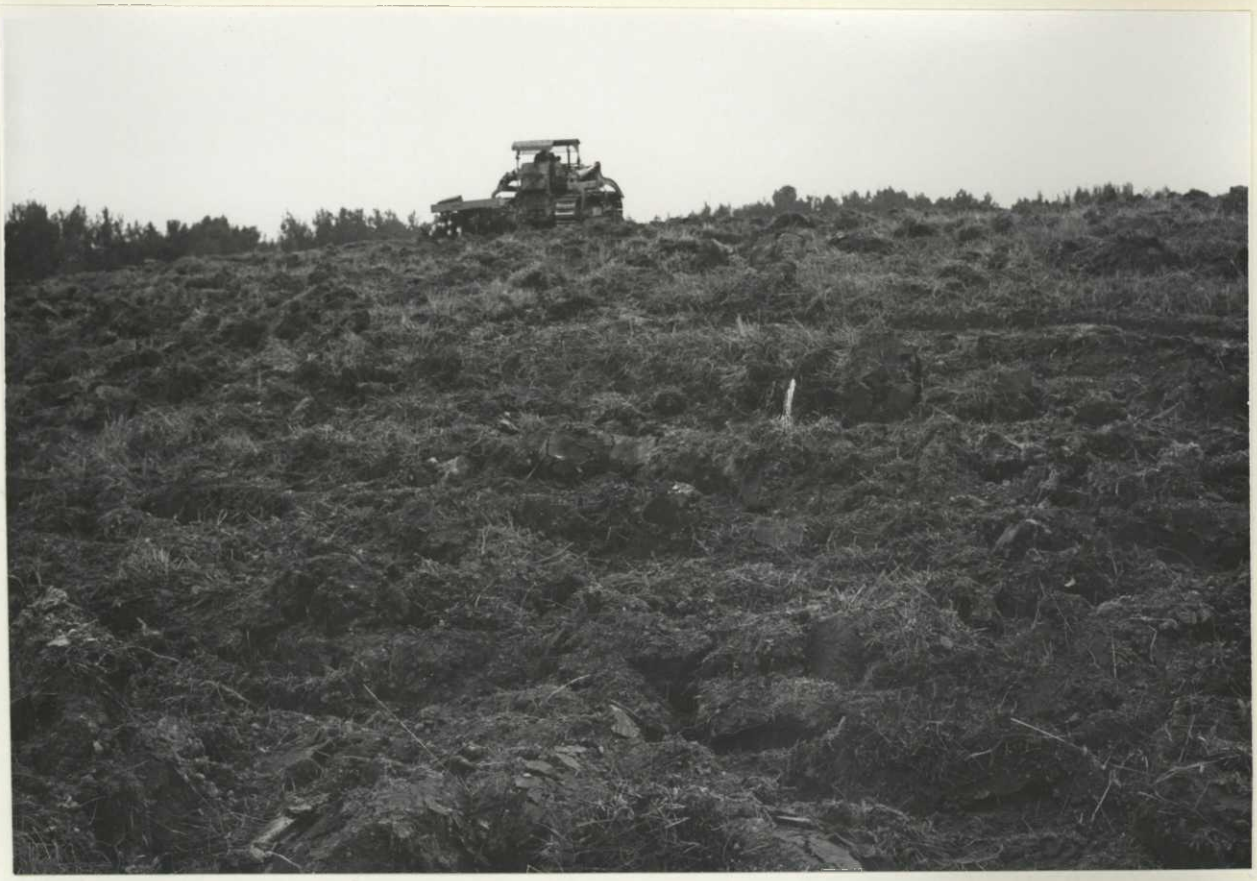


Fig. 57. A large sand blow at the southwest corner of Smith Field.

July 23, 1965 R 93-11

Hakala

Fig. 58. Mulching is effective in holding sand until vegetation can become established. The hay mulch is a source of seed to the area.

August 19, 1965 R 95-4

Hakala

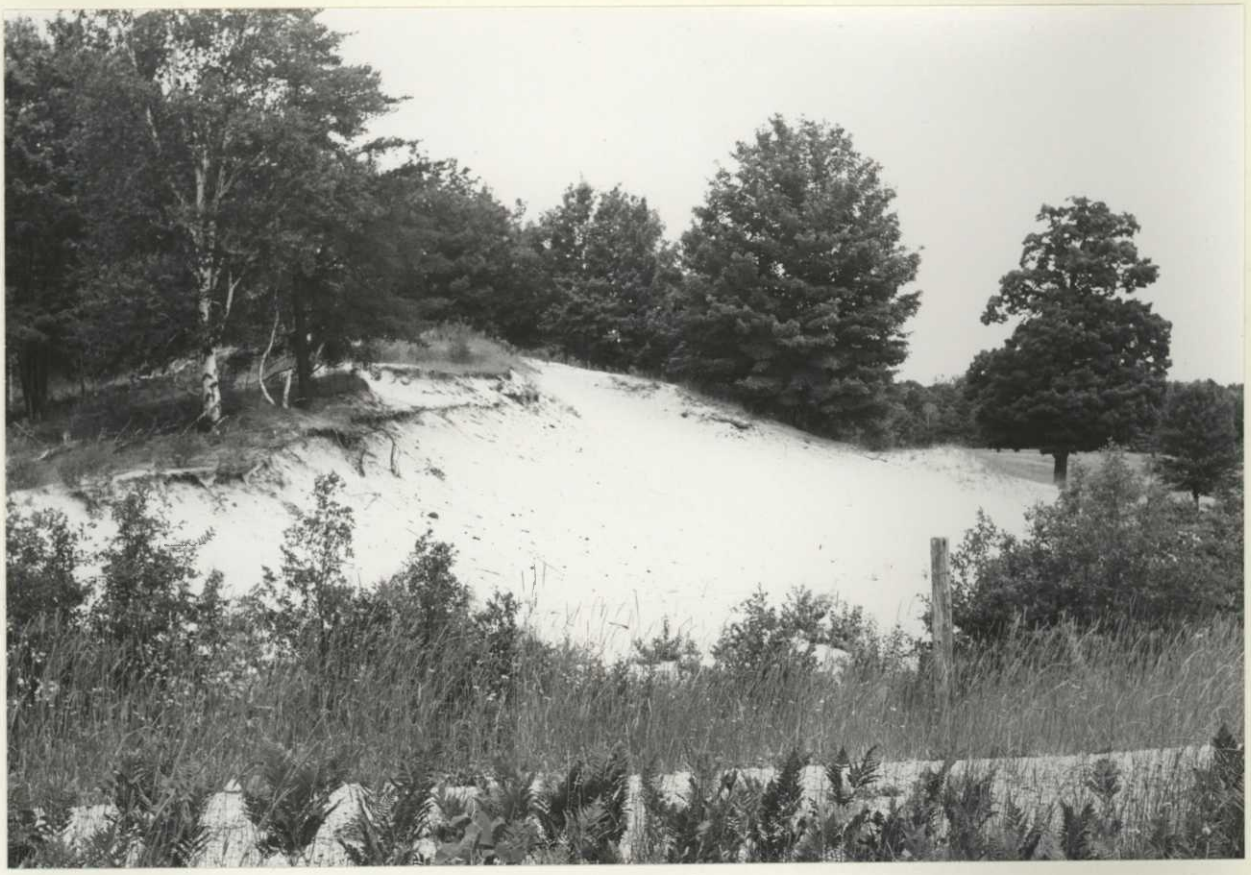


Fig. 59. Predators have gained access to islands in Lower Goose Pen by means of the spoilbank along the inside of the ditch.

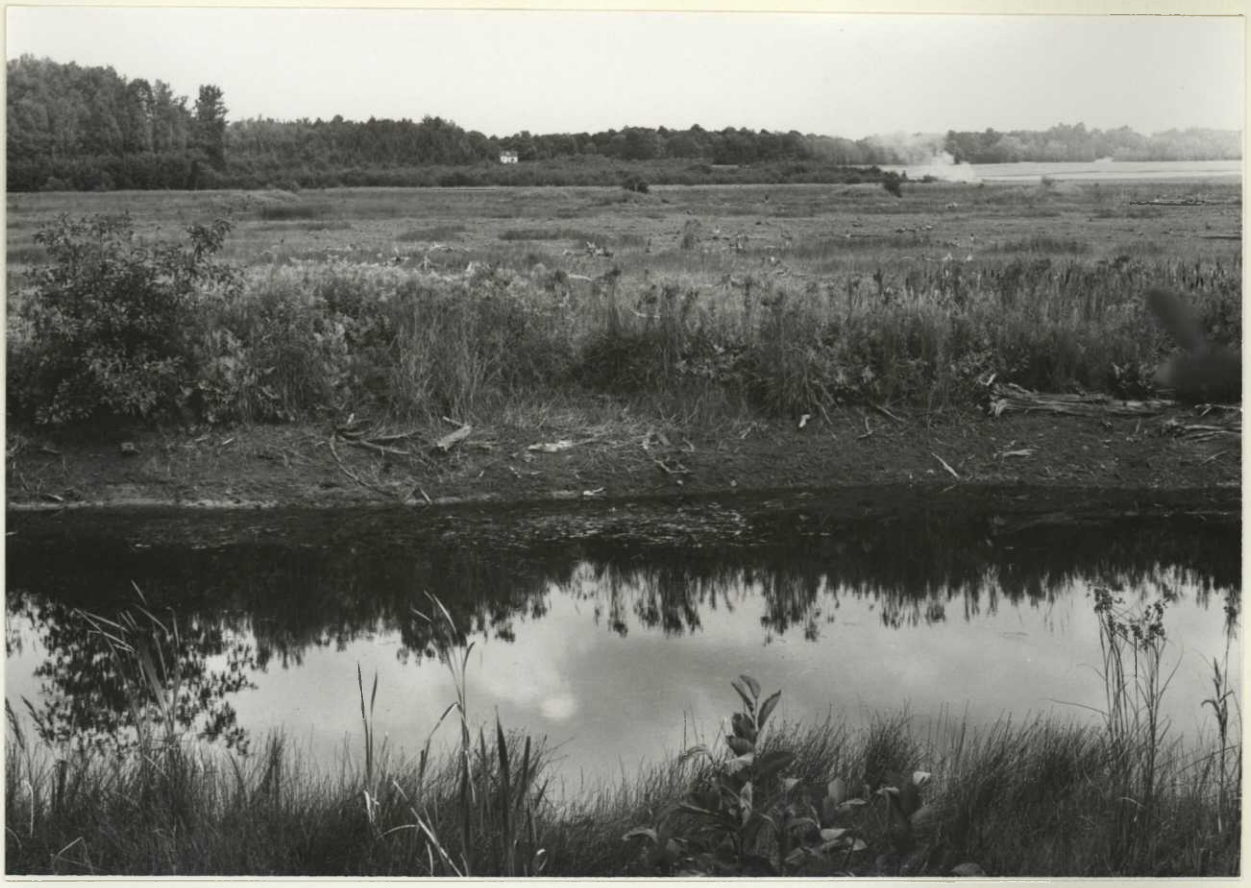
August 19, 1965 R 95-9

Hakala

Fig. 60. The spoilbank was leveled to eliminate this problem.

October 25, 1965 R 87-3

Hakala



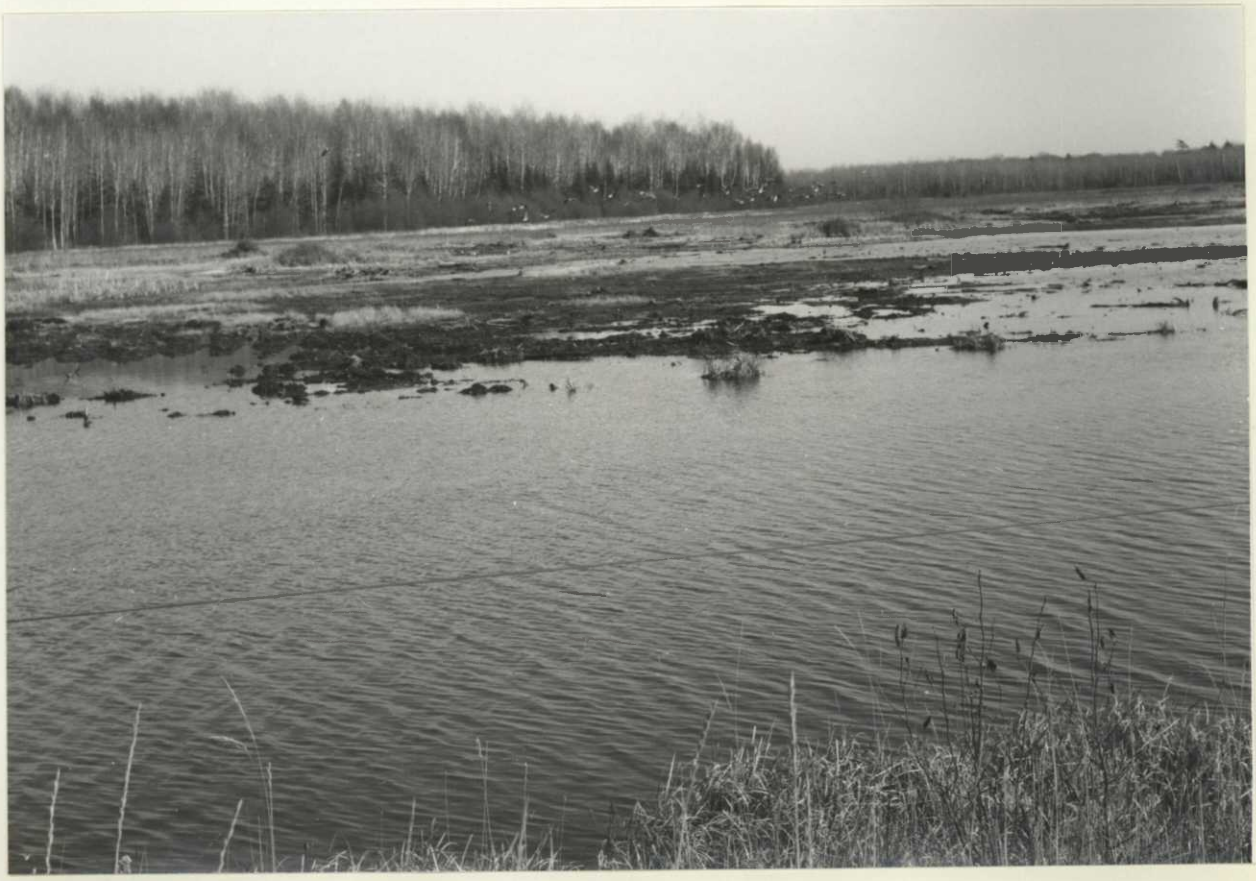


Fig. 61. Ten pair of new islands were pushed up across the southern side of the Lower Goose Pen Pool.

October 25, 1965 R 87-2

Hakala

Fig. 62. A portion of the bank along the ditch from J-1 to I-1 Pools was leveled, top soil was added and it was seeded to produce a grazing area for geese with broods.

August 6, 1965 R 92-7

Hakala

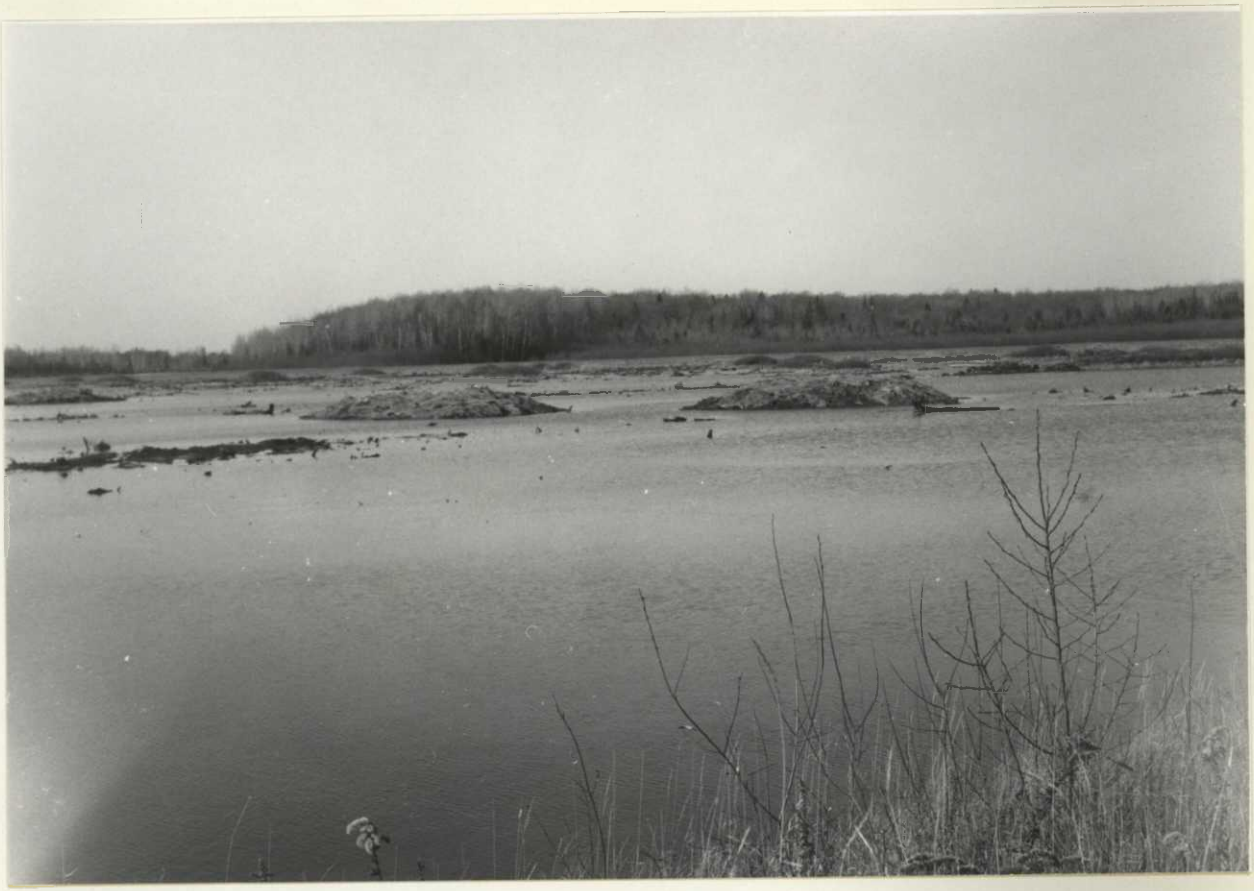


Fig. 63. Beginning construction of a road to detour around Chicago Farm fields. This road will eliminate disturbance to wildlife using those fields.

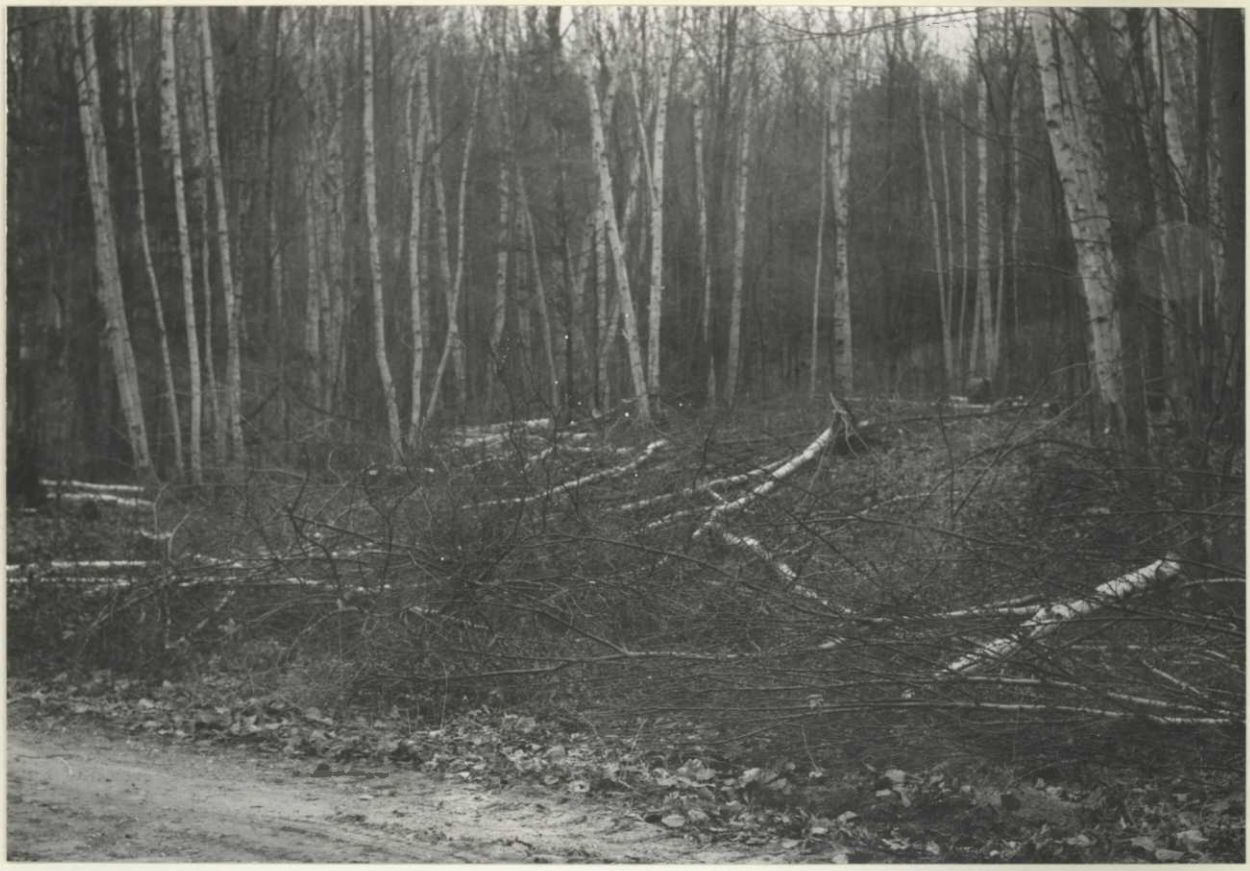
October 22, 1965 R 86-1

Hakala

Fig. 64. Clearing the timber from the new roadway.

November 1, 1965= R 88-11

Hakala



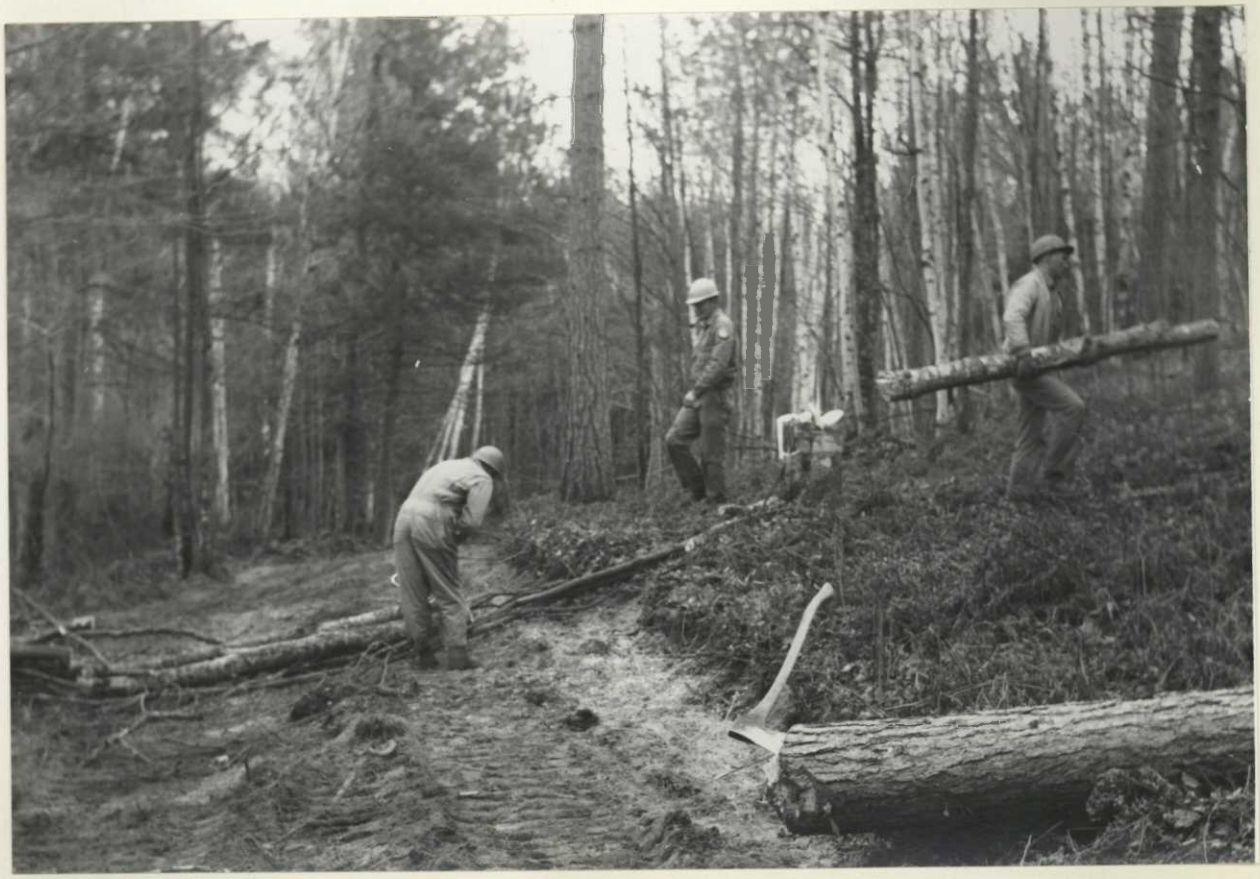


Fig. 65. Developing the roadbed of the new Chicago Farm by-pass road.

October 22, 1965 R 86-10

Hakala

Fig. 66. Putting on the finishing touches with the Austin-Western H-99 Grader.

November 1, 1965 R 88-12

Hakala

Fig. 67. Frost crystals on the pines add sparkle to many a winter morning at Seney.

March 15, 1965 R 70-10

Halladay